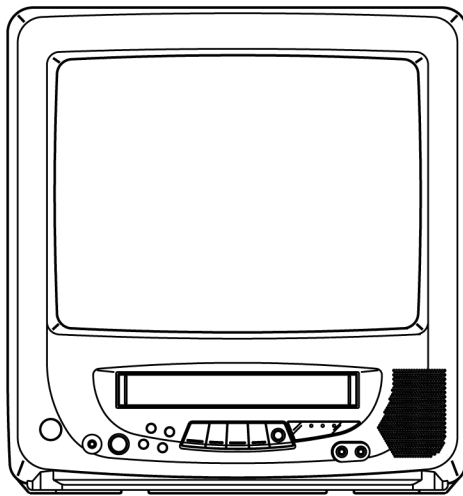


Memorex®

MVT2135

SERVICE MANUAL

COLOR TELEVISION/VIDEO CASSETTE RECORDER



VHS

CONTENTS

SERVICING NOTICES ON CHECKING	A1-1
HOW TO ORDER PARTS	A1-1
CONTENTS	A2-1
GENERAL SPECIFICATIONS	A3-1~A3-4
DISASSEMBLY INSTRUCTIONS	
1. REMOVAL OF MECHANICAL PARTS AND P. C. BOARDS	B1-1
2. REMOVAL OF DECK PARTS	B2-1~B2-5
3. REMOVAL OF ANODE CAP	B3-1
4. REMOVAL AND INSTALLATION OF FLAT PACKAGE IC	B4-1, B4-2
KEY TO ABBREVIATIONS	C1-1, C1-2
SERVICE MODE LIST	C2-1
PREVENTIVE CHECKS AND SERVICE INTERVALS	C3-1, C3-2
WHEN REPLACING EEPROM (MEMORY) IC	C4-1
SERVICING FIXTURES AND TOOLS	C5-1
PREPARATION FOR SERVICING	C5-1
MECHANICAL ADJUSTMENTS	D1-1~D1-4
ELECTRICAL ADJUSTMENTS	D2-1~D2-5
BLOCK DIAGRAMS	
TV	E-1, E-2
Y/C/AUDIO/CCD/HEAD AMP/IN/OUT	E-3, E-4
MICON/OPERATION.....	E-5, E-6
PRINTED CIRCUIT BOARDS	
OPERATION	F-1, F-2
SYSCON/CRT	F-3~F-6
SCHEMATIC DIAGRAMS	
Y/C/AUDIO/CCD/HEAD AMP	G-1, G-2
MICON	G-3, G-4
IN/OUT	G-5, G-6
CHROMA/IF	G-7, G-8
SOUND AMP	G-9, G-10
POWER	G-11, G-12
DEFLECTION	G-13, G-14
CRT	G-15, G-16
OPERATION	G-17, G-18
INTERCONNECTION DIAGRAM	G-19, G-20
WAVEFORMS	H-1, H-2
MECHANICAL EXPLODED VIEWS	I-1, I-2
CHASSIS EXPLODED VIEWS	I-3, I-4
MECHANICAL REPLACEMENT PARTS LIST	J1-1
CHASSIS REPLACEMENT PARTS LIST	J2-1
ELECTRICAL REPLACEMENT PARTS LIST	J3-1, J3-2

GENERAL SPECIFICATIONS

G-1	TV System	CRT	CRT Size / Visual Size		13 inch / 335.4 mmV		
			CRT Type		Normal		
			Deflection		90 degree		
			Magnetic Field	BV/BH	+0.45G / +0.18G		
		Color System		NTSC			
		Speaker			1Speaker		
			Position		Front		
			Size		1.5 x 2.5 Inch		
		Sound Output	Impedance		8 ohm		
			MAX		1.5 W		
		10%(Typical)		1.0 W			
G-2	VCR System	System			VHS Player / Recorder		
		Video System			NTSC		
		Hi-Fi STEREO			No		
		NTSC PB			-		
		Deck	DECK		OVD-7		
			Loading System		Front		
			Motor		3		
		Heads	Video Head		2Head		
			FM Audio Head		No		
		Audio /Control			Mono /Yes		
		Erase(Full Track Erase)			Yes		
		Tape	Rec	PAL		-	
				NTSC		SP/SLP	
		Speed	Play	PAL		-	
				NTSC		SP/LP/SLP	
		Fast Forward / Rewind Time (Approx.)				FF:4'50"/REW:2'30"	
						with Cassette	
Forward/Reverse				NTSC or PAL-M			
Picture Search				SP/LP/SLP=3x,5x/7x,9x/9x,15x			
Frame Advance				-			
Slow Speed				-			
G-3	Tuning System	Broadcasting System			US System M		
		Tuner and Receive CH	System		1Tuner		
			Destination		US(w/CATV)		
			Tuning System		F-Synth		
			Input Impedance		VHF/UHF 75 ohm		
			CH Coverage		2~69, 4A,A-5~A-1, A~I, J~W,W+1~W+84		
		Intermediate Frequency	Picture(FP)		45.75 MHz		
			Sound(FS)		41.25 MHz		
			FP-FS		4.5 MHz		
		Preset CH			No		
Stereo/Dual TV Sound			No				
Tuner Sound Muting			Yes				
G-4	Signal	Video Signal	Input Level		1 V p-p/75 ohm		
			Output Level		-		
			S/N Ratio (Weighted)		50dB		
			Horizontal Resolution at SP Mode		220Lines		
		Audio Signal	Input Level		-8dBm/50Kohm		
			Output Level		-		
			S/N Ratio at SP (Weighted)		38dB		
			Harmonic Distortion at SP (1KHz)	Typical	1.5 %		
				at SP	100Hz - 10kHz		
			at LP	100Hz - 6kHz			
			at SLP	100Hz - 4kHz			
		Hi-Fi Audio Signal	Dynamic Range : More than		- dB		
			Wow And Flutter : Less than		- %Wrms		
Channel Separation : More than			- dB				
Harmonic Distortion : Less than			- %				
G-5	Power	Power Source	AC		120V,60Hz		
			DC		-		
		Power Consumption			at AC	65 W at 120V 60Hz	
					at DC	-	
		Protector	Stand by (at AC) Per Year		5 W at 120V 60Hz		
	Power Fuse Dew Sensor		Yes No				
G-6	Regulation	Safety Radiation X-Radiation			UL FCC DHHS		
G-7	Temperature	Operation Storage			+5°C ~ +40°C -20°C ~ +60°C		
G-8	Operating Humidity				Less then 80% RH		
G-9	On Screen Menu				Yes		

GENERAL SPECIFICATIONS

	Display	Menu	Type	Charactor	
		Timer Rec Set		Yes	
		Channel Setup		Yes	
			TV/CATV	Yes	
			Auto CH Memory	Yes	
			Add/ Delete	Yes	
			Guide CH Set		No
		TV Setup		Yes	
			V-chip Set	Yes	
			On/Off Timer Set	Yes	
			Picture	Yes	
			Audio		No
			Sap On/Off		No
		Auto Repeat On/Off		Yes	
		System Setup		Yes	
			Clock Set	Yes	
			Language	Yes	
			Auto Clock On/Off	Yes	
			Standard Time	Yes	
			Daylight Saving Time	Yes	
		Commercial Advance			No
			Marking On/Off		No
			Blueback On/Off		No
			Playback Auto/Manual		No
			Unmarked Tape		No
		Movie Advance			No
			Go To Movie		No
			Go To Preview		No
		G-CODE(or SHOWVIEW or PLUSCODE)	No. Entry		No
		Clock / Date		Yes	
		CH/AV		Yes	
		Tape Counter(Linear Counter)		Yes	
		Tape Speed		Yes	
		Sleep Time		Yes	
		Stereo/Audio Output			No
			Bilingual		No
			SAP		No
		Control	Volume	Yes	
		Level	Bright / Contrast / Sharpness / Color	Yes	
			Tint	Yes	
			Bass/Treble/Balance		No
			Manual Tracking	Yes	
			Play/Stop/FF/Rew/Rec/OTR/T-Rec/Pause/Eject/Tape In (Symbol Mark)	Yes	
			Auto Tracking/Manual Tracking	Yes	
			Caption / Text	Yes	
			Index		No
			Muting	Yes	
			Hi-Fi		No
			Repeat	Yes	
			Zero Return		No
			DEW		No
G-10	OSD Language	OSD Language Setting		English French Spanish English	
G-11	Clock,Timer and Timer Back-up	Calendar		1990/1/1 ~ 2081/12/31	
		Timer Events		8 Program/ 1 Month	
		One Touch Recording	Max Time	5 Hours	
		OTPB Valid Time			No
		Sleep Timer	Max Time	120	Min
			Step	10	Min
		On/Off Timer	Program(On Timer / Off Timer)	1	Program
		Auto Shut Off	No Signal	15	Min
			No Operation	-	
G-12	Remote Control	Timer Back-up (at Power Off Mode)		5	Sec
		Unit		RC-CG	
		Glow in Dark Remocon		Yes	
		Power Source	Voltage(D.C)	3V	
			UM size x pcs	UM-4 x 2 pcs	
		Total Keys		41	Keys
		Keys	Power	Yes	
			1	Yes	
			2	Yes	
			3	Yes	
			4	Yes	
			5	Yes	
			6	Yes	
			7	Yes	
			8	Yes	

GENERAL SPECIFICATIONS

		9	Yes
		0	Yes
		CH Up	Yes
		CH Down	Yes
		Volume Up	Yes
		Volume Down	Yes
		Input Select	Yes
		Play	Yes
		F.Fwd	Yes
		Rew	Yes
		Pause/Still	Yes
		Stop	Yes
		Rec/OTR	Yes
		Eject	Yes
		Counter Reset	Yes
		Speed	Yes
		Timer Rec	Yes
		TV Monitor	Yes
		Quick View	Yes
		Program	Yes
		Slow	No
		Auto Tracking	Yes
		Set/Tracking+	Yes
		Set/Tracking -	Yes
		Menu	Yes
		Enter	Yes
		Cancel	Yes
		Call	Yes
		TV/Caption/Text	Yes
		Sleep Timer	Yes
		Muting	Yes
		Zero Return	Yes
		CM Skip	Yes
		Audio Select	No
G-13	Features	Auto Head Cleaning	Yes
		Auto Tracking	Yes
		HQ (VHS Standard High Quality)	Yes
		Auto Power On, Auto Play, Auto Rewind, Auto Eject	Yes
		VIDEO PLUS+(SHOWVIEW,G-CODE)	No
		Auto Clock	Yes
		Forward / Reverse Picture Search	Yes
		Reverse Slow	No
		One Touch Playback	No
		Auto CH Memory	Yes
		Closed Caption	Yes
		TV Auto Shut off Function	Yes
		End Call	No
		Index Search	No
		SQPB	No
		CATV	Yes
		CM Skip(30sec x 6 Times)	Yes
		Comb Filter	No
		TV Monitor	Yes
		Program Extend	No
		Choke Coil	No
		Energy Star	Yes
		Protect of FBT Leak Curcuit	No
		Dirty Head	No
		V-chip USA V-chip	Yes
		CANADA V-chip	No
		Zero Return	Yes
		CM Advance	No
		Movie Advance	No
G-14	Accessories	Owner's Manual Language	English/Spanish
		w/Guarantee Card	No
		Remote Control Unit	Yes
		Battery	No
		UM size x pcs	-
		Rod Antenna	Yes
		Poles	2 pole
		Terminal	F type
		w/300 ohm to 75 ohm Antenna Adapter	Yes
		Loop Antenna	No
		Terminal	-
		U/V Mixer	No
		300 ohm to 75 ohm Antenna Adapter	No

GENERAL SPECIFICATIONS

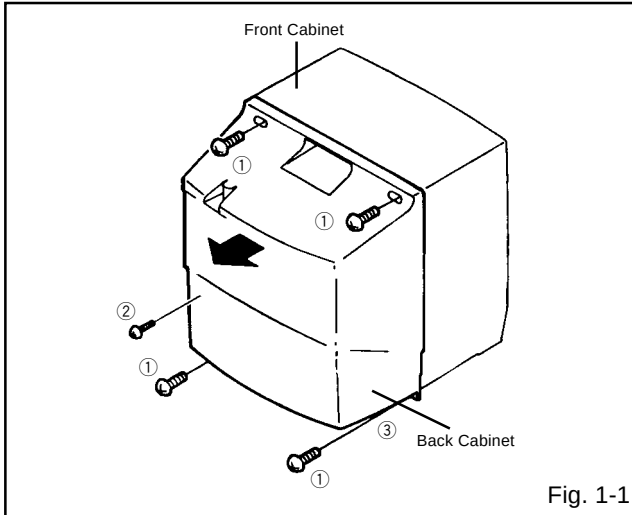
		Antenna Change Plug		No	
		DC Car Cord (Center+)		No	
		AC Plug Adapter		No	
		AC Cord		No	
		AV Cord (2Pin-1Pin)		No	
		Guarantee Card	Yes		
		Registration Card		No	
		ESP Card		No	
		Warning Sheet		No	
		Dew/AHC Caution Sheet		No	
		Quick Set-up Sheet		No	
		Circuit Diagram		No	
		Service Facility List		No	
		Important Safeguard		No	
		Informatin Sheet		No	
G-15	Interface	Switch	Power	Yes	
			Play	Yes	
			Pause/Still	No	
			System Select	No	
			One Touch Playback	No	
			Channel Up	Yes	
			Channel Down	Yes	
			F.FWD/Cue	Yes	
			Eject/Stop	Yes	
			Main Power SW	No	
			Volume Up	Yes	
			Volume Down	Yes	
			Rew/Rev	Yes	
			Rec/OTR	Yes	
			Input Select	No	
		Indicator	Power	No	
			Rec/OTR	Red	
			T-Rec	Red	
			On Timer	No	
		Key Light up	CS	No	
			Rec/OTR	No	
			One Touch Playback	No	
			Play	No	
		Terminals	Front	Video Input	RCA x 1 RCA x 1 Head Phone(Stereo & Mono, 3.5mm)
				Audio Input	
				Other Terminal	
			Rear	Video Input	No
				Audio Input	No
				Video Output	No
				Audio Output	No
Euro Scart	No				
Diversity	No				
Ext Speaker	W Im No				
DC Jack 12V(Center +)	No				
VHF/UHF Antenna Input	F Type				
AC Inlet	No				
G-16	Set Size	Approx.	W x D x H (mm)	362 x 370.5 x 382	
G-17	Weight	Net (Approx.)	11.0	(24.3 lbs)	
		Gross (Approx.)	12.5	(27.6 lbs)	
G-18	Carton	Master Carton		No	
			Content	-	
			Material	-	
			Dimensions W x D x H(mm)	-	
			Description of Origin	-	
		Gift Box		Yes	
			Material	Double/White	
			Dimensions W x D x H(mm)	423 x 447 x 443	
			Design	As per Buyer's	
			Description of Origin	Yes	
		Drop Test	Natural Dropping At	1 Corner / 3 Edges / 6 Surfaces	
				Height (cm)	62
	Container Stuffing(40' container)	700	Sets		
G-19	Cabinet Material	Cabinet Front	PS	94V0/DECABROM	
		Cabinet Rear	PS	94V0/DECABROM	

DISASSEMBLY INSTRUCTIONS

1. REMOVAL OF MECHANICAL PARTS AND P.C. BOARDS

1-1: BACK CABINET (Refer to Fig. 1-1)

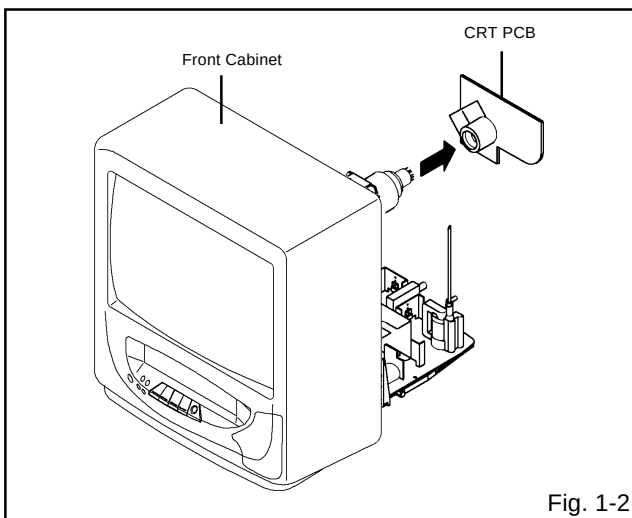
1. Remove the 4 screws ①.
2. Remove the screw ②.
3. Remove the AC cord from the AC cord hook ③.
4. Remove the Back Cabinet in the direction of arrow.



1-2: CRT PCB (Refer to Fig. 1-2)

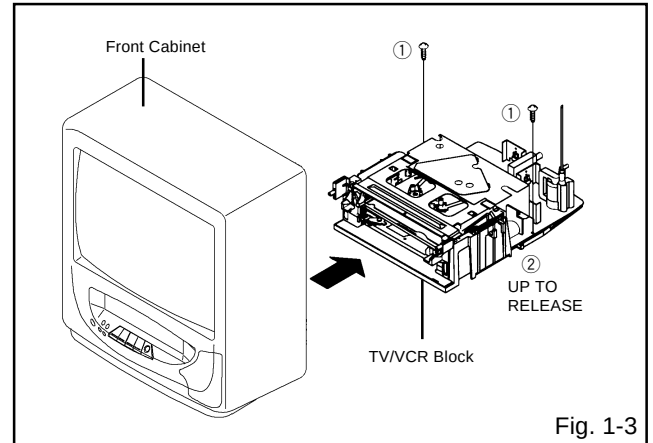
CAUTION: BEFORE REMOVING THE ANODE CAP, DISCHARGE ELECTRICITY BECAUSE IT CONTAINS HIGH VOLTAGE. BEFORE ATTEMPTING TO REMOVE OR REPAIR ANY PCB, UNPLUG THE POWER CORD FROM THE AC SOURCE.

1. Remove the Anode Cap.
(Refer to REMOVAL OF ANODE CAP)
2. Disconnect the following connectors:
(CP801 and CP851).
3. Remove the CRT PCB in the direction of arrow.



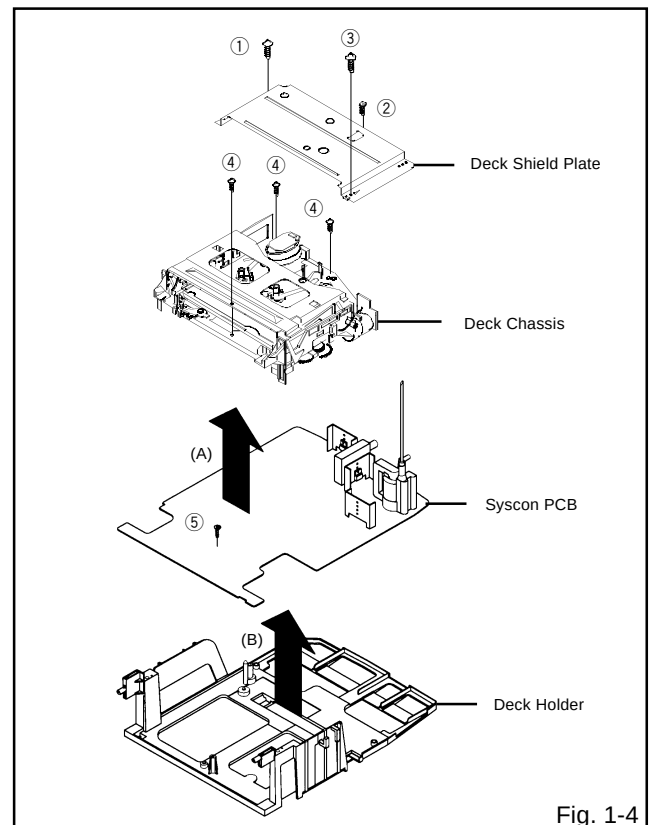
1-3: TV/VCR BLOCK (Refer to Fig. 1-3)

1. Remove the 2 screws ①.
2. Disconnect the following connectors:
(CP757, CP353, CP401 and CP502).
3. Unlock the support ②.
4. Remove the TV/VCR Block in the direction of arrow.



1-4: DECK CHASSIS AND SYSCON PCB (Refer to Fig. 1-4)

1. Remove the screw ①.
2. Remove the screw ②.
3. Remove the screw ③.
4. Remove the 3 screws ④.
5. Disconnect the following connectors:
(CP1004, CP1005, CP1006, CP4001, CP4002 and CP4003).
6. Remove the Deck Chassis and Deck Shield Plate in the direction of arrow (A).
7. Remove the screw ⑤.
8. Remove the Syscon PCB in the direction of arrow (B).



DISASSEMBLY INSTRUCTIONS

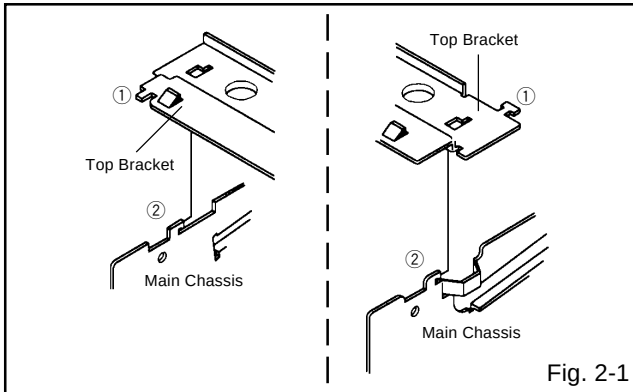
2. REMOVAL OF DECK PARTS

2-1: TOP BRACKET (Refer to Fig. 2-1)

1. Extend the 2 supports ①.
2. Slide the 2 supports ② and remove the Top Bracket.

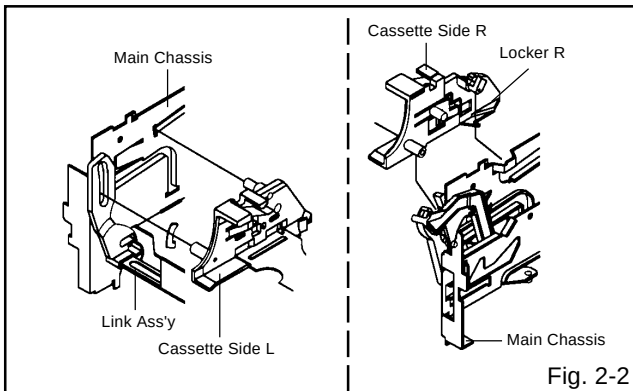
NOTE

1. After the installation of the Top Bracket, bend the support ① so that the Top Bracket is fixed.



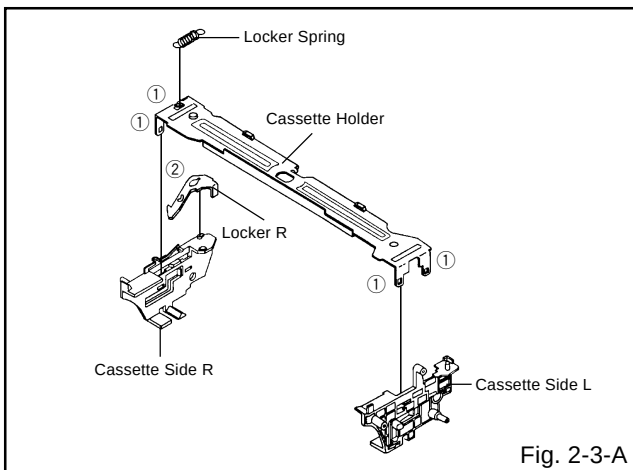
2-2: CASSETTE HOLDER ASS'Y (Refer to Fig. 2-2)

1. Move the Cassette Holder Ass'y to the front side.
2. Push the Locker R to remove the Cassette Side R.
3. Remove the Cassette Side L.



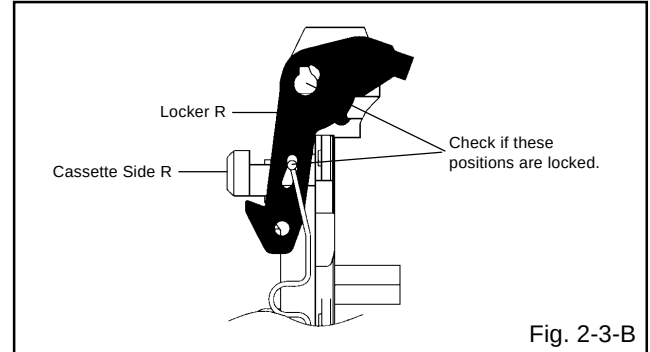
2-3: CASSETTE SIDE L/R (Refer to Fig. 2-3-A)

1. Remove the Locker Spring.
2. Unlock the 4 supports ① and then remove the Cassette Side L/R.
3. Unlock the support ② and then remove the Locker R.



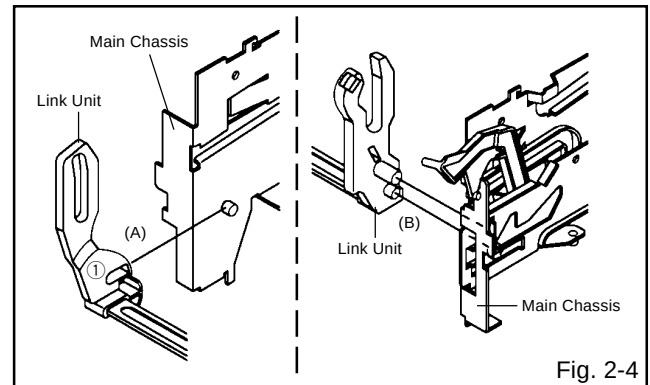
NOTE

1. In case of the Locker R installation, check if the two positions of Fig.2-3-B are correctly locked.
2. When you install the Cassette Side R, be sure to move the Locker R after installing.



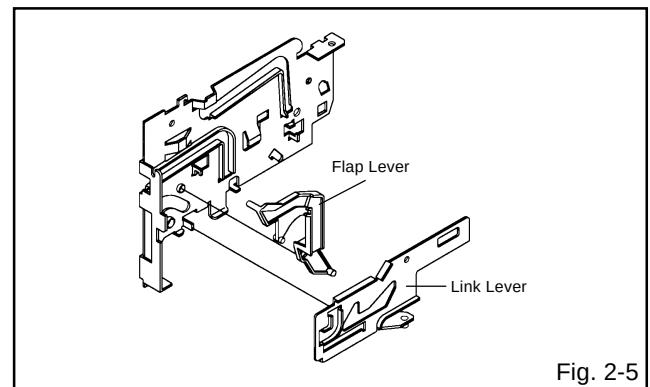
2-4: LINK UNIT (Refer to Fig. 2-4)

1. Set the Link Unit to the Eject position.
2. Unlock the support ①.
3. Remove the (A) side of the Link Unit first, then remove the (B) side.



2-5: LINK LEVER/FLAP LEVER (Refer to Fig. 2-5)

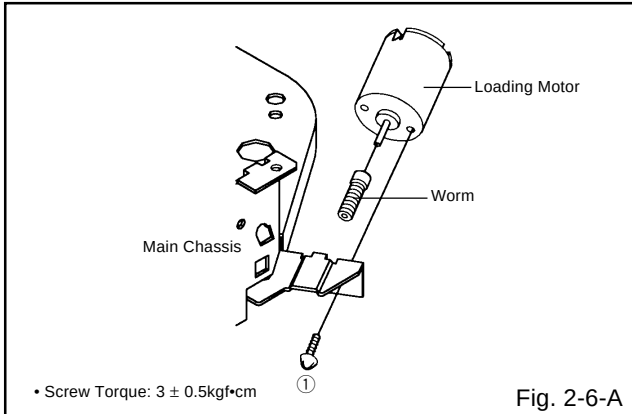
1. Remove the Link Lever.
2. Remove the Flap Lever.



DISASSEMBLY INSTRUCTIONS

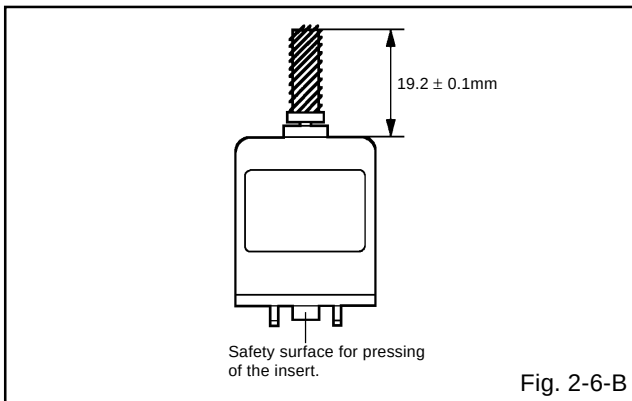
2-6: LOADING MOTOR/WORM (Refer to Fig. 2-6-A)

1. Remove the screw ①.
2. Remove the Loading Motor.
3. Remove the Worm.



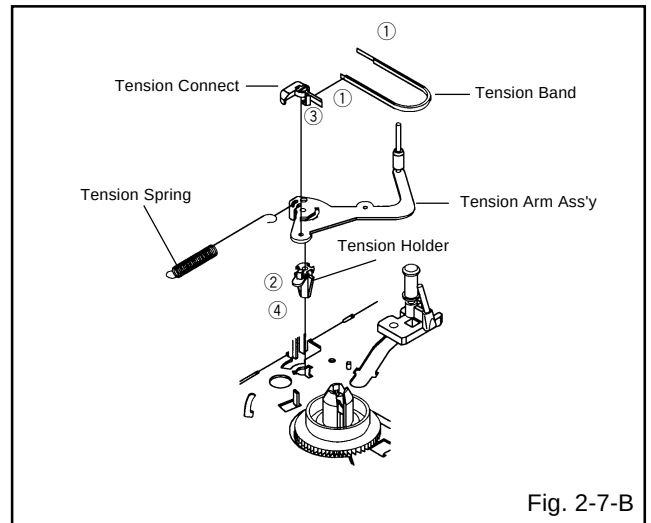
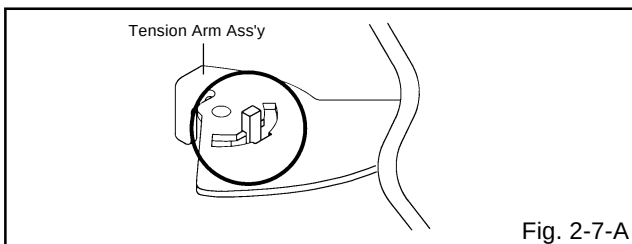
NOTE

1. In case of the Worm installation, check if the value of the Fig. 2-6-B is correct.



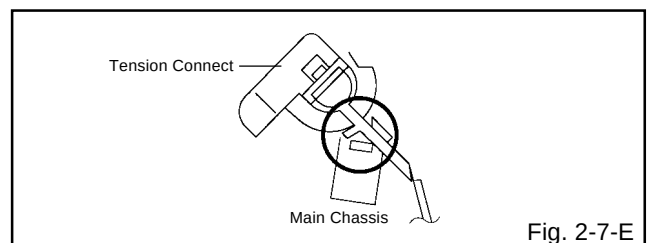
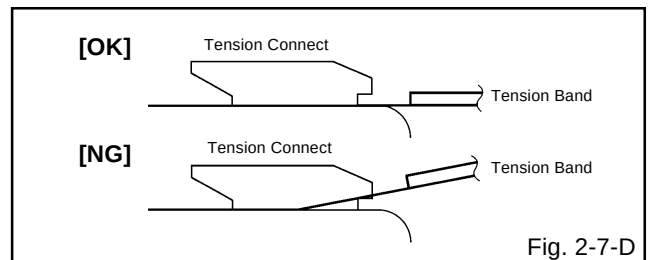
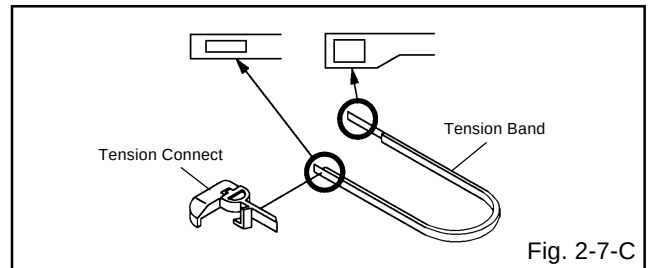
2-7: TENSION ASS'Y (Refer to Fig. 2-7-B)

1. Turn the Pinch Roller Cam clockwise so that the Tension Holder hook is set to the position of Fig. 2-7-A to move the Tension Arm Ass'y.
2. Remove the Tension Spring.
3. Unlock the 2 supports ① and remove the Tension Band.
4. Unlock the support ② and remove the Tension Arm Ass'y.
5. Unlock the support ③ and remove the Tension Connect.
6. Float the hook ④ and turn it clockwise then remove the Tension Holder.



NOTE

1. In case of the Tension Band installation, note the direction of the installation. (Refer to Fig. 2-7-C)
2. In case of the Tension Band installation, install correctly as Fig. 2-7-D.
3. In case of the Tension Connect installation, install as the circled section of Fig. 2-7-E.



DISASSEMBLY INSTRUCTIONS

2-8: T BRAKE ARM/T BRAKE BAND (Refer to Fig. 2-8-A)

1. Remove the T Brake Spring.
2. Turn the T Brake Arm clockwise and bend the hook section to remove it.
3. Unlock the 2 supports ① and remove the T Brake Band.

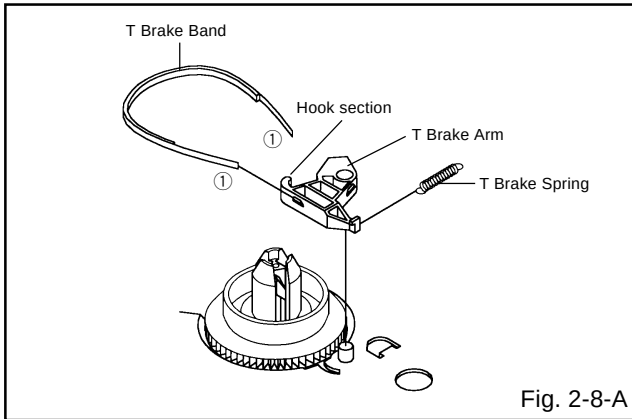


Fig. 2-8-A

NOTE

1. In case of the T Brake Band installation, install correctly as Fig. 2-8-B.

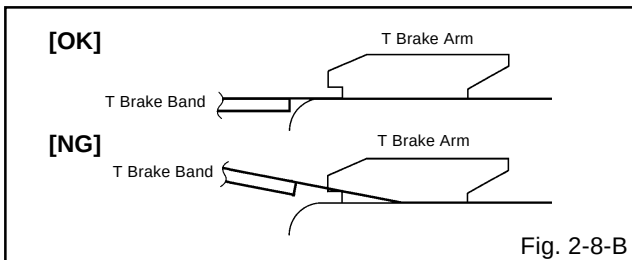


Fig. 2-8-B

2-9: S REEL/T REEL/IDLER ARM ASS'Y/IDLER GEAR (Refer to Fig. 2-9-A)

1. Remove the S Reel and T Reel.
2. Remove the 2 Polyslider Washers ①.
3. Remove the Idler Arm Ass'y and Idler Gear.

NOTE

1. Take care not to damage the gears of the S Reel and T Reel.
2. The Polyslider Washer may be remained on the back of the reel.
3. Take care not to damage the shaft.
4. Do not touch the section "A" of S Reel and T Reel. (Use gloves.) (Refer to Fig. 2-9-A) Do not adhere the stains on it.
5. When you install the reel, clean the shaft and grease it (MG-33). (If you do not grease, noise may be heard in FF/REW mode.)
6. After installing the reel, adjust the height of the reel. (Refer to MECHANICAL ADJUSTMENT)

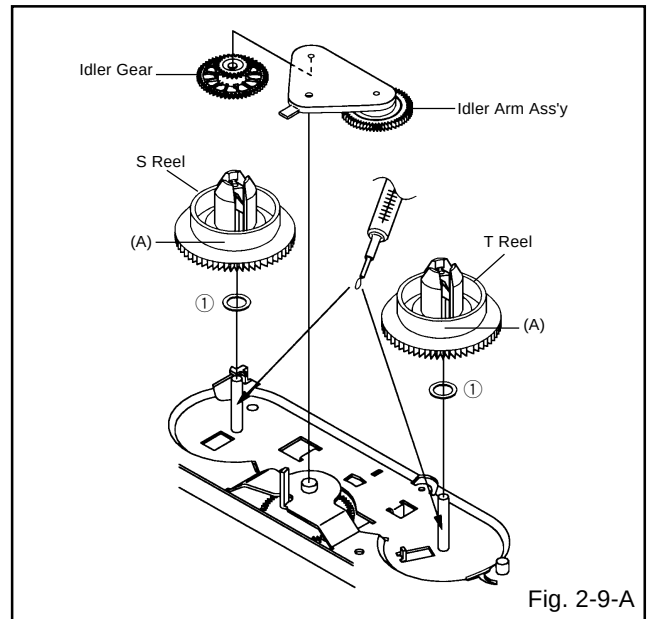


Fig. 2-9-A

NOTE

1. In case of the S Reel and T Reel installation, check if the correct parts are installed. (Refer to Fig. 2-9-B)
2. In case of the Idler Arm Ass'y installation, install correctly as Fig. 2-9-C.

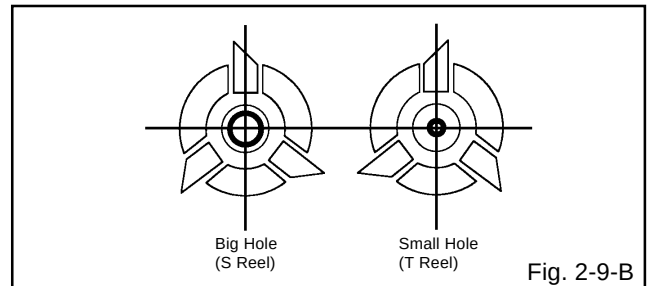


Fig. 2-9-B

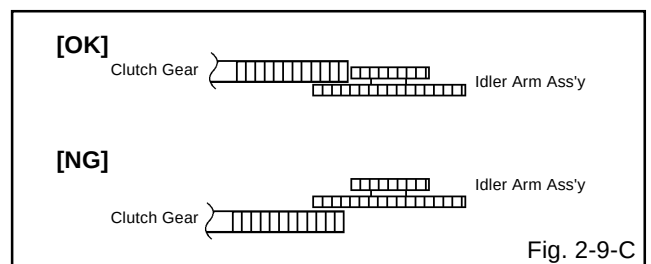
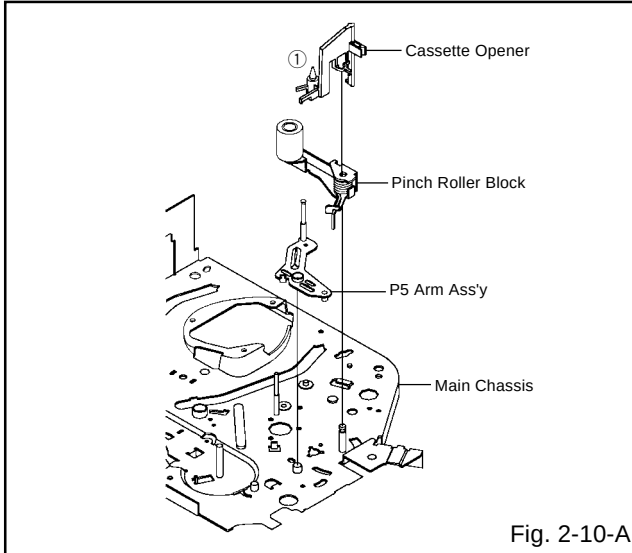


Fig. 2-9-C

DISASSEMBLY INSTRUCTIONS

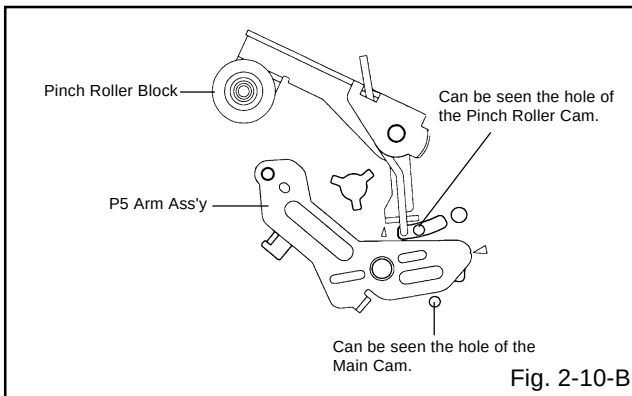
2-10: CASSETTE OPENER/PINCH ROLLER BLOCK/ P5 ARM ASS'Y (Refer to Fig. 2-10-A)

1. Unlock the support ① and remove the Cassette Opener.
2. Remove the Pinch Roller Block and P5 Arm Ass'y.



NOTE

1. Do not touch the Pinch Roller. (Use gloves.)
2. In case of the Pinch Roller Block and the Pinch Roller Cam installation, install correctly as Fig. 2-10-B.

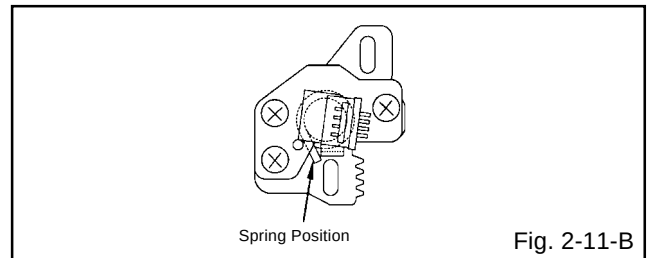
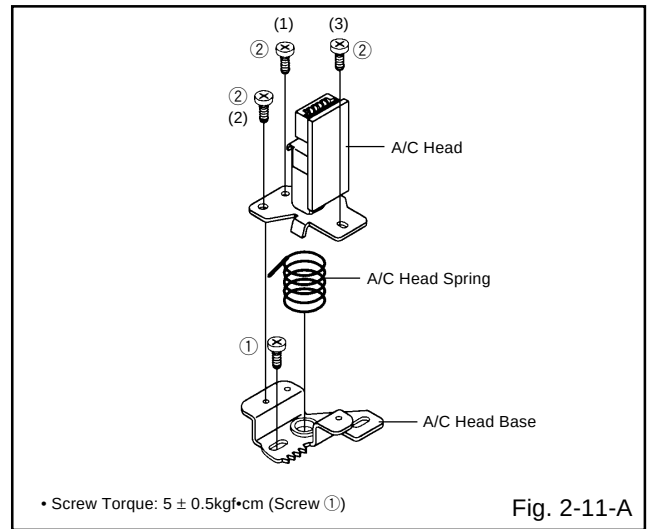


2-11: A/C HEAD (Refer to Fig. 2-11-A)

1. Remove the screw ①.
2. Remove the A/C Head Base.
3. Remove the 3 screws ②.
4. Remove the A/C Head and A/C Head Spring.

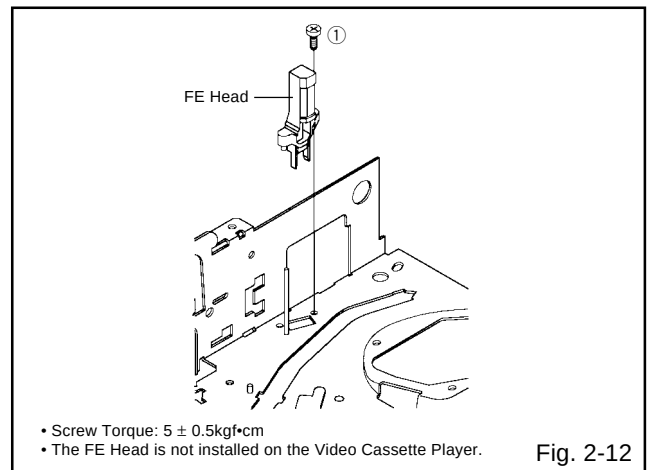
NOTE

1. Do not touch the A/C Head. (Use gloves.)
2. When you install the A/C Head Spring, install as shown in Fig. 2-11-B.
3. When you install the A/C Head, tighten the screw (1) first, then tighten the screw (2), finally tighten the screw (3).



2-12: FE HEAD (RECORDER ONLY) (Refer to Fig. 2-12)

1. Remove the screw ①.
2. Remove the FE Head.



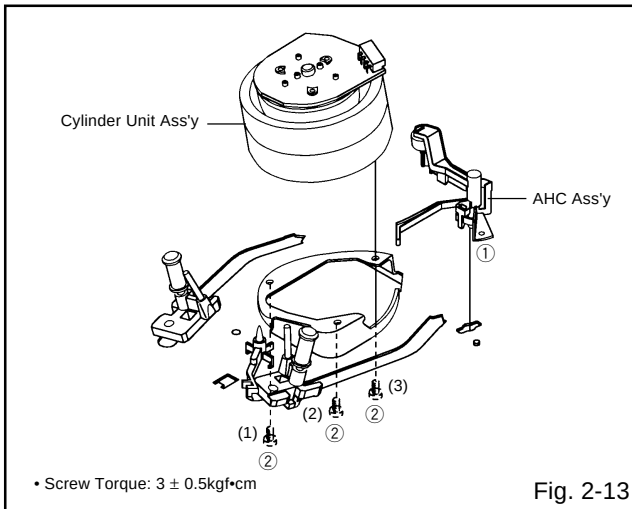
DISASSEMBLY INSTRUCTIONS

2-13: AHC ASS'Y/CYLINDER UNIT ASS'Y (Refer to Fig. 2-13)

1. Unlock the support ① and remove the AHC Ass'y.
2. Disconnect the following connector:
(CD2001)
3. Remove the 3 screws ②.
4. Remove the Cylinder Unit Ass'y.

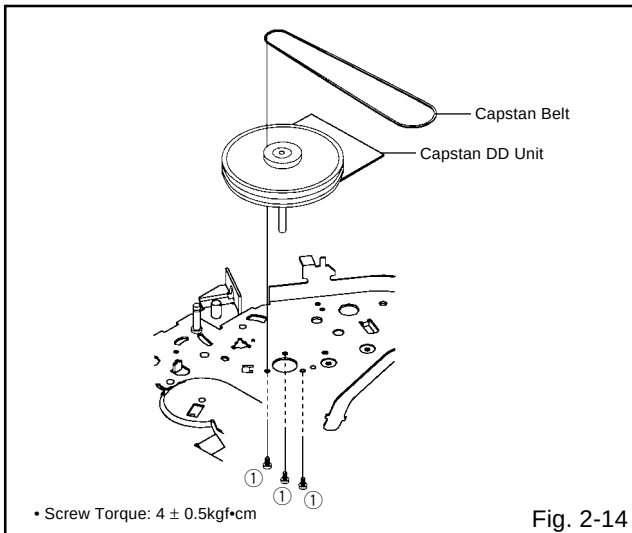
NOTE

1. When you install the Cylinder Unit Ass'y, tighten the screws from (1) to (3) in order while pulling the Ass'y toward the left front direction.



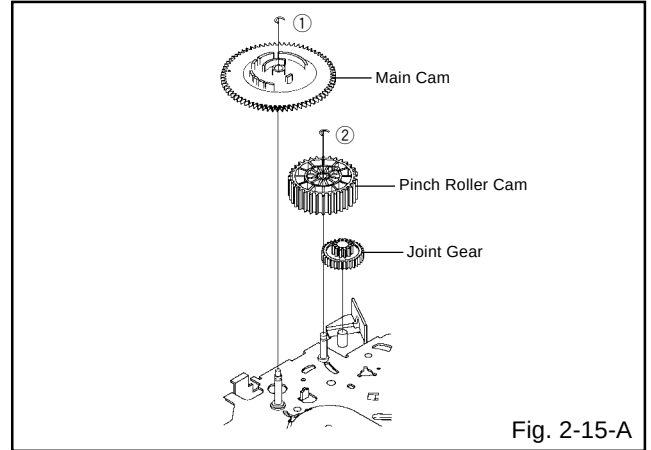
2-14: CAPSTAN DD UNIT (Refer to Fig. 2-14)

1. Remove the Capstan Belt.
2. Remove the 3 screws ①.
3. Remove the Capstan DD Unit.



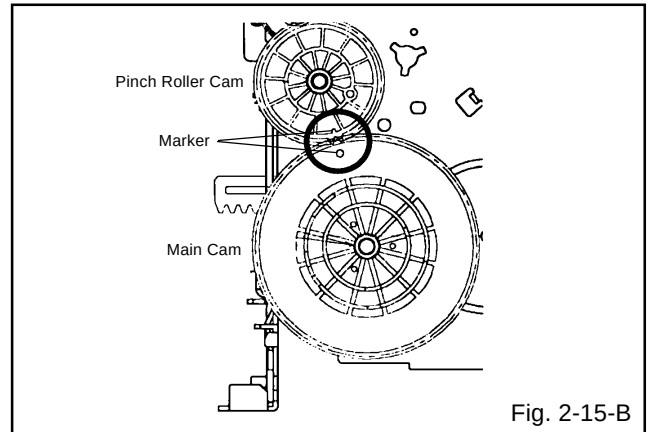
2-15: MAIN CAM/PINCH ROLLER CAM/JOINT GEAR (Refer to Fig. 2-15-A)

1. Remove the E-Ring ①, then remove the Main Cam.
2. Remove the E-Ring ②, then remove the Pinch Roller Cam and Joint Gear.



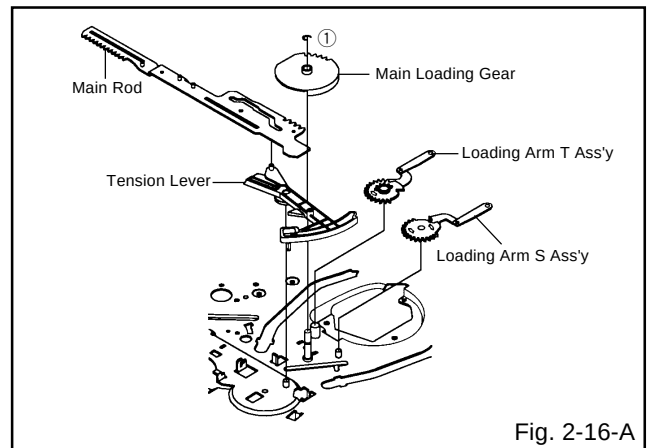
NOTE

1. In case of the Pinch Roller Cam and Main Cam installation, install them as the circled section of Fig. 2-15-B so that the each markers are met. (Refer to Fig. 2-15-B)



2-16: LOADING GEAR S/T ASS'Y (Refer to Fig. 2-16-A)

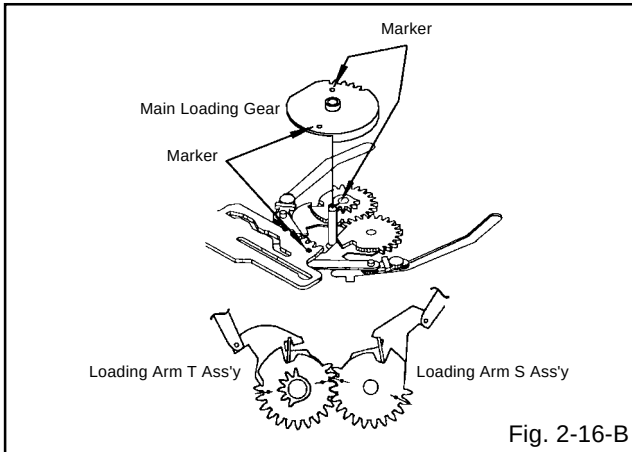
1. Remove the E-Ring ① and remove the Main Loading Gear.
2. Remove the Main Rod, Tension Lever, Loading Arm S Ass'y and Loading Arm T Ass'y.



DISASSEMBLY INSTRUCTIONS

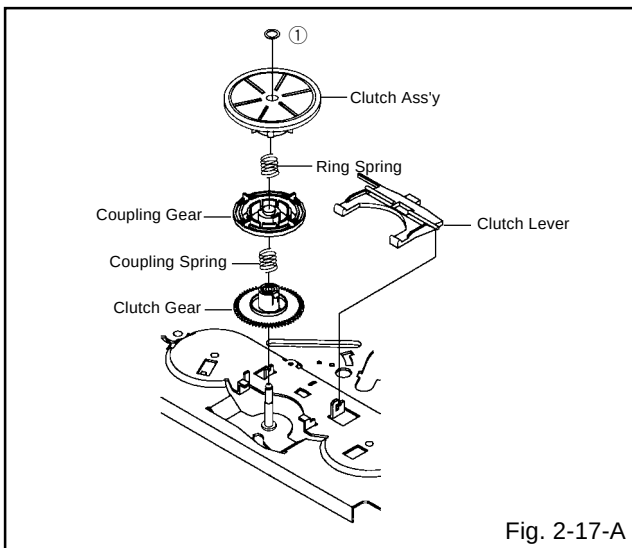
NOTE

1. When you install the Loading Arm S Ass'y, Loading Arm T Ass'y and Main Loading Gear, align each marker.
(Refer to Fig. 2-16-B)



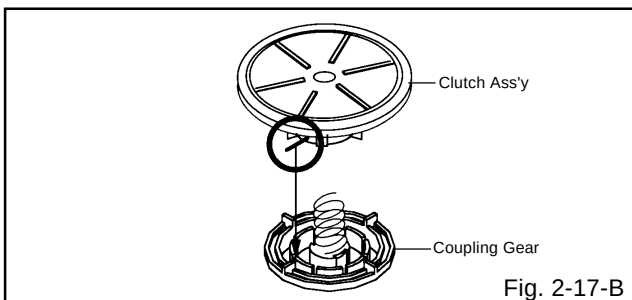
2-17: CLUTCH ASS'Y/RING SPRING/CLUTCH LEVER/CLUTCH GEAR (Refer to Fig. 2-17-A)

1. Remove the Polyslider Washer ①.
2. Remove the Clutch Ass'y and Ring Spring.
3. Remove the Clutch Lever.
4. Remove the Coupling Gear, Coupling Spring and Clutch Gear.



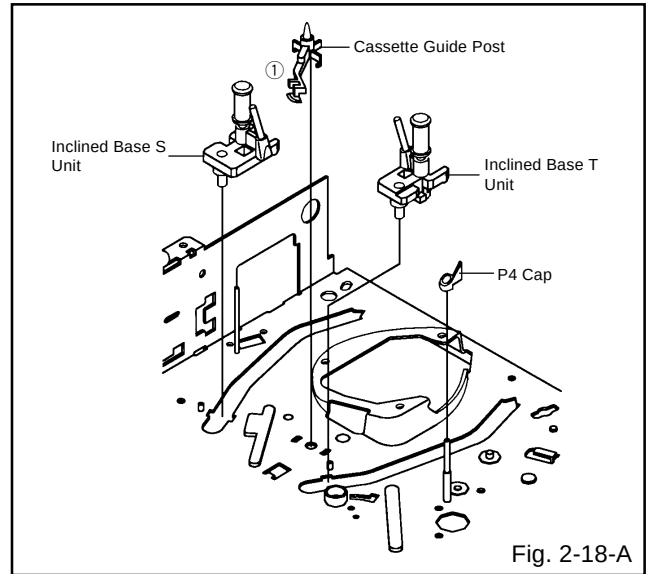
NOTE

1. In case of the Clutch Ass'y installation, install it with inserting the spring of the Clutch Ass'y into the dent of the Coupling Gear. (Refer to Fig. 2-17-B)



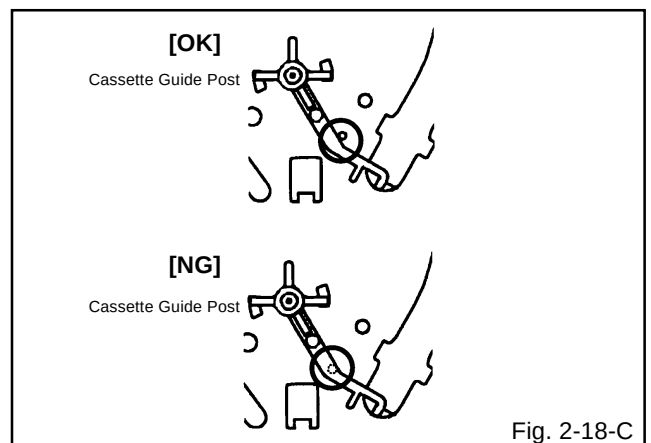
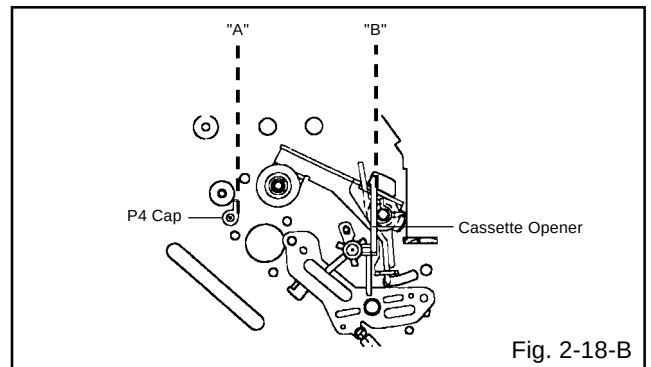
2-18: CASSETTE GUIDE POST/INCLINED BASE S/T UNIT/P4 CAP (Refer to Fig. 2-18-A)

1. Remove the P4 Cap.
2. Unlock the support ① and remove the Cassette Guide Post.
3. Remove the Inclined Base S Unit and Inclined Base T Unit.



NOTE

1. Do not touch the roller of Guide Roller.
2. In case of the P4 Cap installation, install it with parallel for "A" and "B" of Fig. 2-18-B.
3. In case of the Cassette Guide Post installation, install correctly as the circled section of Fig. 2-18-C.



DISASSEMBLY INSTRUCTIONS

3. REMOVAL OF ANODE CAP

Read the following **NOTED** items before starting work.

- * After turning the power off there might still be a potential voltage that is very dangerous. When removing the Anode Cap, make sure to discharge the Anode Cap's potential voltage.
- * Do not use pliers to loosen or tighten the Anode Cap terminal, this may cause the spring to be damaged.

REMOVAL

1. Follow the steps as follows to discharge the Anode Cap. **(Refer to Fig. 3-1.)**

Connect one end of an Alligator Clip to the metal part of a flat-blade screwdriver and the other end to ground. While holding the plastic part of the insulated Screwdriver, touch the support of the Anode with the tip of the Screwdriver.

A cracking noise will be heard as the voltage is discharged.

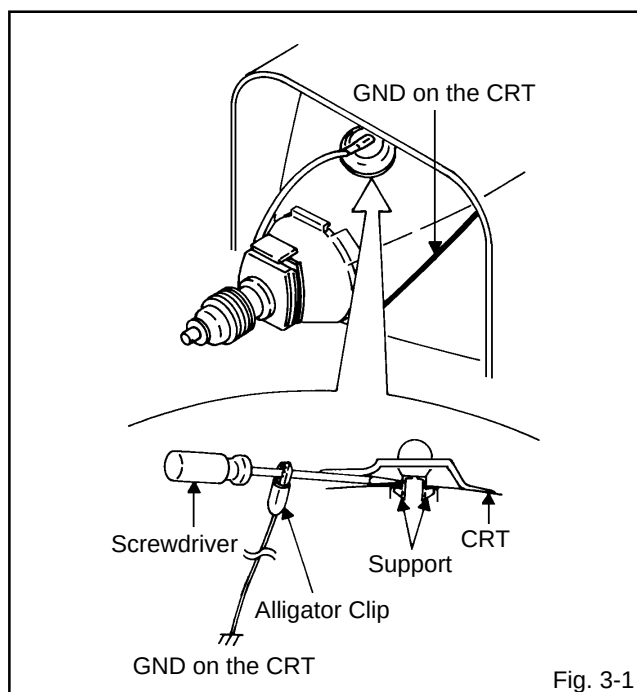


Fig. 3-1

2. Flip up the sides of the Rubber Cap in the direction of the arrow and remove one side of the support. **(Refer to Fig. 3-2.)**

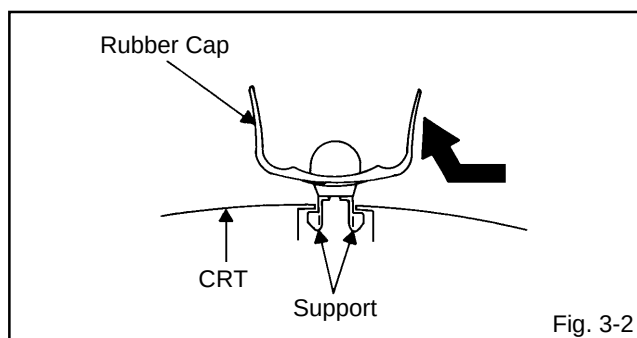


Fig. 3-2

3. After one side is removed, pull in the opposite direction to remove the other.

NOTE

Take care not to damage the Rubber Cap.

INSTALLATION

1. Clean the spot where the cap was located with a small amount of alcohol. **(Refer to Fig. 3-3.)**

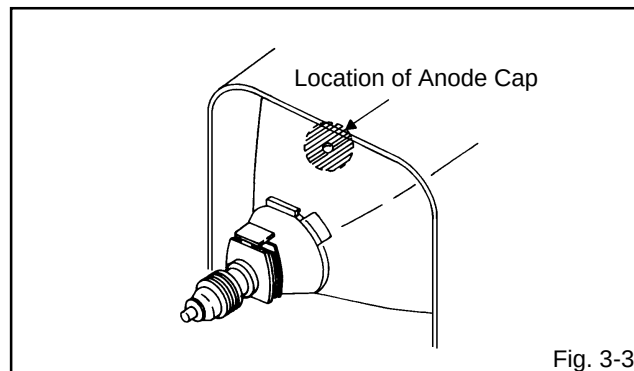


Fig. 3-3

NOTE

Confirm that there is no dirt, dust, etc. at the spot where the cap was located.

2. Arrange the wire of the Anode Cap and make sure the wire is not twisted.
3. Turn over the Rubber Cap. **(Refer to Fig. 3-4.)**

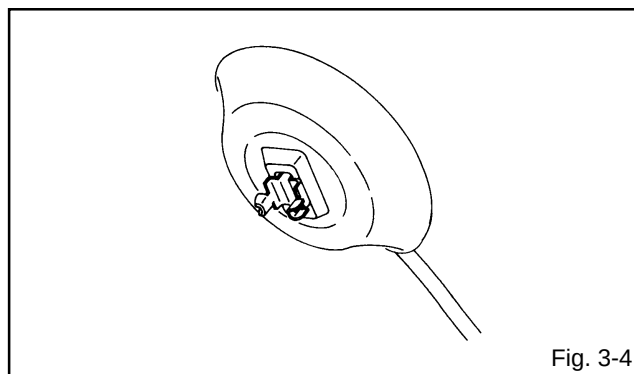


Fig. 3-4

4. Insert one end of the Anode Support into the anode button, then the other as shown in Fig. 3-5.

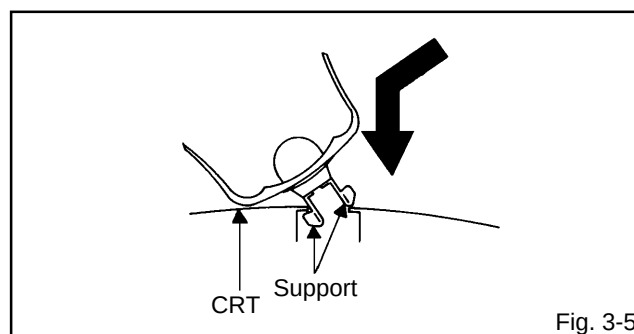


Fig. 3-5

5. Confirm that the Support is securely connected.
6. Put on the Rubber Cap without moving any parts.

DISASSEMBLY INSTRUCTIONS

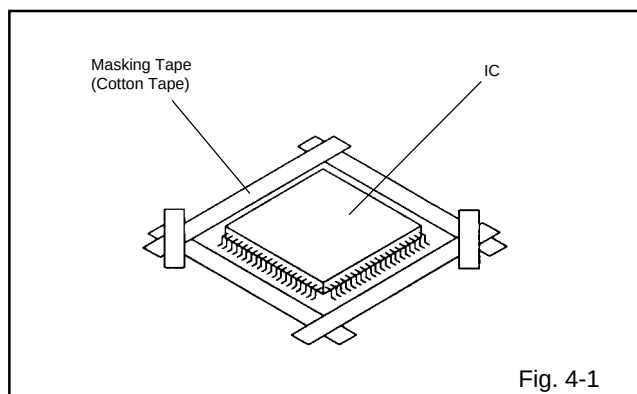
4. REMOVAL AND INSTALLATION OF FLAT PACKAGE IC

REMOVAL

1. Put the Masking Tape (cotton tape) around the Flat Package IC to protect other parts from any damage. **(Refer to Fig. 4-1.)**

NOTE

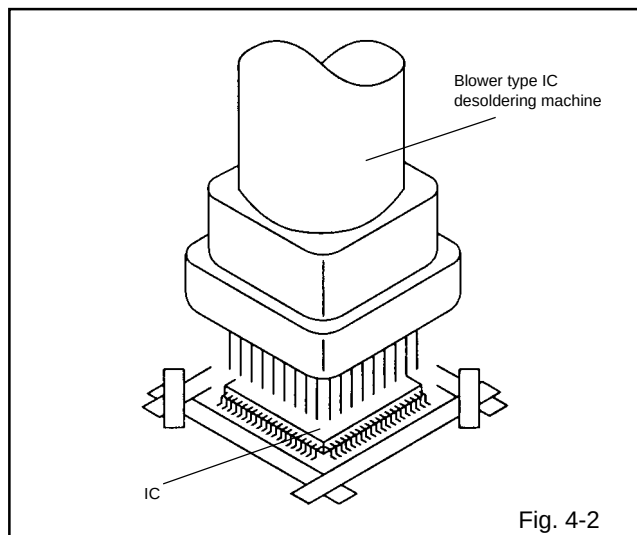
Masking is carried out on all the parts located within 10 mm distance from IC leads.



2. Heat the IC leads using a blower type IC desoldering machine. **(Refer to Fig. 4-2.)**

NOTE

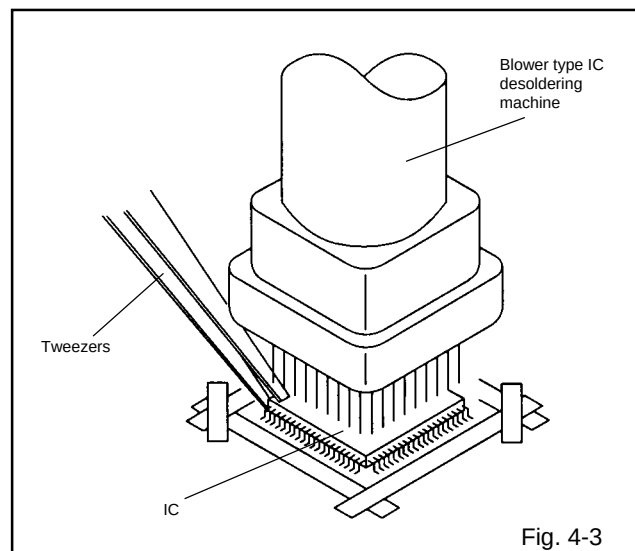
Do not add the rotating and the back and forth directions force on the IC, until IC can move back and forth easily after desoldering the IC leads completely.



3. When IC starts moving back and forth easily after desoldering completely, pickup the corner of the IC using a tweezers and remove the IC by moving with the IC desoldering machine. **(Refer to Fig. 4-3.)**

NOTE

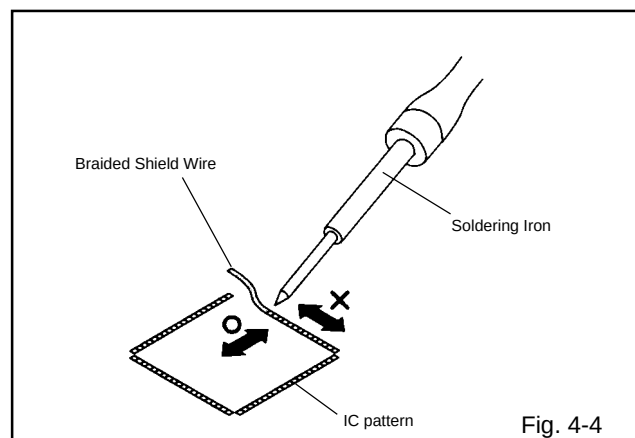
Some ICs on the PCB are affixed with glue, so be careful not to break or damage the foil of each IC leads or solder lands under the IC when removing it.



4. Peel off the Masking Tape.
5. Absorb the solder left on the pattern using the Braided Shield Wire. **(Refer to Fig. 4-4.)**

NOTE

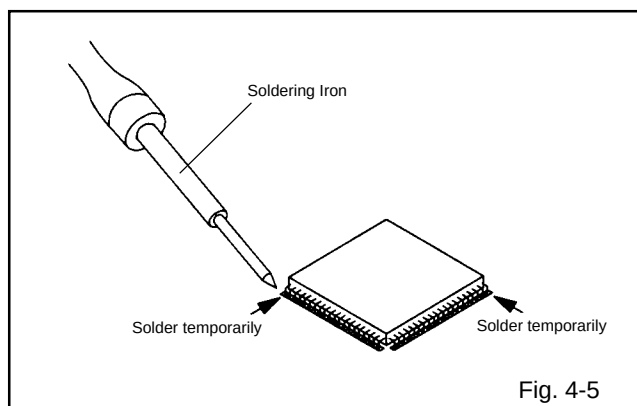
Do not move the Braided Shield Wire in the vertical direction towards the IC pattern.



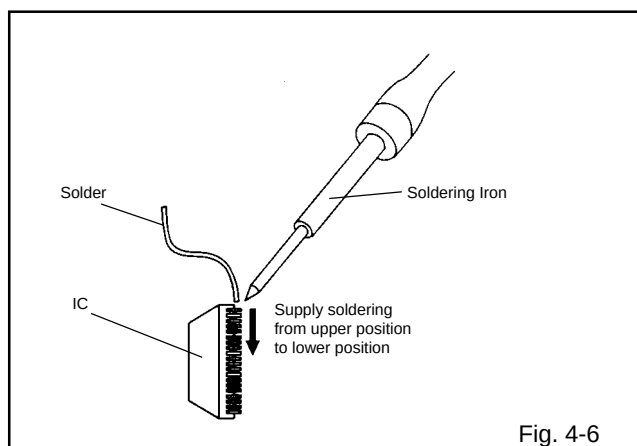
DISASSEMBLY INSTRUCTIONS

INSTALLATION

1. Take care of the polarity of new IC and then install the new IC fitting on the printed circuit pattern. Then solder each lead on the diagonal positions of IC temporarily. **(Refer to Fig. 4-5.)**



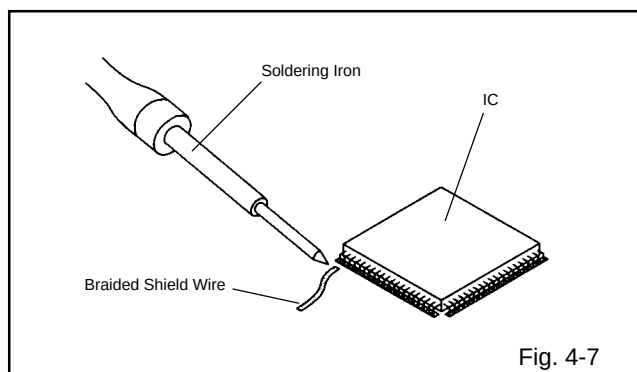
2. Supply the solder from the upper position of IC leads sliding to the lower position of the IC leads. **(Refer to Fig. 4-6.)**



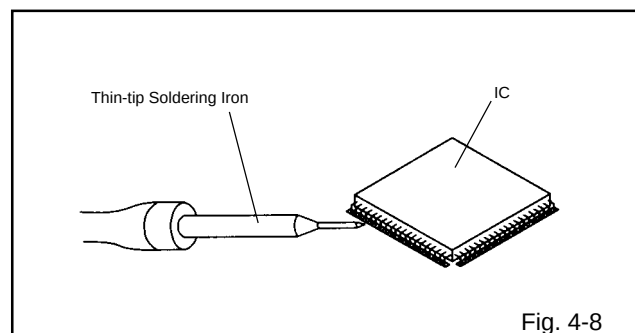
3. Absorb the solder left on the lead using the Braided Shield Wire. **(Refer to Fig. 4-7.)**

NOTE

Do not absorb the solder to excess.



4. When bridge-soldering between terminals and/or the soldering amount are not enough, resolder using a Thin-tip Soldering Iron. **(Refer to Fig. 4-8.)**



5. Finally, confirm the soldering status on four sides of the IC using a magnifying glass. Confirm that no abnormality is found on the soldering position and installation position of the parts around the IC. If some abnormality is found, correct by resoldering.

NOTE

When the IC leads are bent during soldering and/or repairing, do not repair the bending of leads. If the bending of leads are repaired, the pattern may be damaged. So, be always sure to replace the IC in this case.

KEY TO ABBREVIATIONS

A	A/C	: Audio/Control	H.SW	: Head Switch	
	ACC	: Automatic Color Control	Hz	: Hertz	
	AE	: Audio Erase	I	IC	: Integrated Circuit
	AFC	: Automatic Frequency Control		IF	: Intermediate Frequency
	AFT	: Automatic Fine Tuning		IND	: Indicator
	AFT DET	: Automatic Fine Tuning Detect		INV	: Inverter
	AGC	: Automatic Gain Control	K	KIL	: Killer
	AMP	: Amplifier	L	L	: Left
	ANT	: Antenna		LED	: Light Emitting Diode
	A.PB	: Audio Playback		LIMIT AMP	: Limiter Amplifier
	APC	: Automatic Phase Control		LM, LDM	: Loading Motor
	ASS'Y	: Assembly		LP	: Long Play
	AT	: All Time		L.P.F	: Low Pass Filter
	AUTO	: Automatic		LUMI.	: Luminance
	A/V	: Audio/Video	M	M	: Motor
B	BGP	: Burst Gate Pulse		MAX	: Maximum
	BOT	: Beginning of Tape		MINI	: Minimum
	BPF	: Bandpass Filter		MIX	: Mixer, mixing
	BRAKE SOL	: Brake Solenoid		MM	: Monostable Multivibrator
	BUFF	: Buffer		MOD	: Modulator, Modulation
	B/W	: Black and White		MPX	: Multiplexer, Multiplex
C	C	: Capacitance, Collector		MS SW	: Mecha State Switch
	CASE	: Cassette	N	NC	: Non Connection
	CAP	: Capstan		NR	: Noise Reduction
	CARR	: Carrier	O	OSC	: Oscillator
	CH	: Channel		OPE	: Operation
	CLK	: Clock	P	PB	: Playback
	CLOCK (SY-SE)	: Clock (Syscon to Servo)		PB CTL	: Playback Control
	COMB	: Combination, Comb Filter		PB-C	: Playback-Chrominance
	CONV	: Converter		PB-Y	: Playback-Luminance
	CPM	: Capstan Motor		PCB	: Printed Circuit Board
	CTL	: Control		P. CON	: Power Control
	CYL	: Cylinder		PD	: Phase Detector
	CYL-M	: Cylinder-Motor		PG	: Pulse Generator
	CYL SENS	: Cylinder-Sensor		P-P	: Peak-to Peak
D	DATA (SY-CE)	: Data (Syscon to Servo)	R	R	: Right
	dB	: Decibel		REC	: Recording
	DC	: Direct Current		REC-C	: Recording-Chrominance
	DD Unit	: Direct Drive Motor Unit		REC-Y	: Recording-Luminance
	DEMOD	: Demodulator		REEL BRK	: Reel Brake
	DET	: Detector		REEL S	: Reel Sensor
	DEV	: Deviation		REF	: Reference
E	E	: Emitter		REG	: Regulated, Regulator
	EF	: Emitter Follower		REW	: Rewind
	EMPH	: Emphasis		REV, RVS	: Reverse
	ENC	: Encoder		RF	: Radio Frequency
	ENV	: Envelope		RMC	: Remote Control
	EOT	: End of Tape		RY	: Relay
	EQ	: Equalizer	S	S. CLK	: Serial Clock
	EXT	: External		S. COM	: Sensor Common
F	F	: Fuse		S. DATA	: Serial Data
	FBC	: Feed Back Clamp		SEG	: Segment
	FE	: Full Erase		SEL	: Select, Selector
	FF	: Fast Forward, Flipflop		SENS	: Sensor
	FG	: Frequency Generator		SER	: Search Mode
	FL SW	: Front Loading Switch		SI	: Serial Input
	FM	: Frequency Modulation		SIF	: Sound Intermediate Frequency
	FSC	: Frequency Sub Carrier		SO	: Serial Output
	FWD	: Forward		SOL	: Solenoid
G	GEN	: Generator		SP	: Standard Play
	GND	: Ground		STB	: Serial Strobe
H	H.P.F	: High Pass Filter		SW	: Switch

KEY TO ABBREVIATIONS

S	SYNC	:	Synchronization
	SYNC SEP	:	Sync Separator, Separation
T	TR	:	Transistor
	TRAC	:	Tracking
	TRICK PB	:	Trick Playback
	TP	:	Test Point
U	UNREG	:	Unregulated
V	V	:	Volt
	VCO	:	Voltage Controlled Oscillator
	VIF	:	Video Intermediate Frequency
	VP	:	Vertical Pulse, Voltage Display
	V.PB	:	Video Playback
	VR	:	Variable Resistor
	V.REC	:	Video Recording
	VSF	:	Visual Search Fast Forward
	VSR	:	Visual Search Rewind
	VSS	:	Voltage Super Source
	V-SYNC	:	Vertical-Synchronization
	VT	:	Voltage Tuning
X	X'TAL	:	Crystal
Y	Y/C	:	Luminance/Chrominance

SERVICE MODE LIST

This unit provided with the following SERVICE MODES so you can repair, examine and adjust easily.

To enter SERVICE MODE, unplug AC cord till lost actual clock time. Then press and hold Vol (-) button of main unit and remocon key simultaneously.

The both pressing of set key and remote control key will not be possible if clock has been set. To reset clock, either unplug AC cord and allow at least 5 seconds before Power On.

Set Key	Remocon Key	Operations
VOL. (-) MIN	0	Releasing of V-CHIP PASSWORD.
VOL. (-) MIN	1	Initialization of the factory. NOTE: Do not use this for the normal servicing.
VOL. (-) MIN	2	Horizontal position adjustment of OSD. NOTE: Also can be adjusted by using the Adjustment MENU. Refer to the "ELECTRICAL ADJUSTMENT" (OSD HORIZONTAL).
VOL. (-) MIN	3	Adjust the PG SHIFTER automatically. Refer to the "ELECTRICAL ADJUSTMENT" (PG SHIFTER).
VOL. (-) MIN	4	Adjust the PG SHIFTER manually. Refer to the "ELECTRICAL ADJUSTMENT" (PG SHIFTER).
VOL. (-) MIN	5	Adjusting of the Tracking to the center position. NOTE: Also can be adjusted by pressing the ATR button for more than 2 seconds during PLAY.
VOL. (-) MIN	6	POWER ON total hours and PLAY/REC total hours are displayed on the screen. Refer to the "PREVENTIVE CHECKS AND SERVICE INTERVALS" (CONFIRMATION OF HOURS USED). Can be checked of the INITIAL DATA of MEMORY IC. Refer to the "WHEN REPLACING EEPROM (MEMORY) IC".
VOL. (-) MIN	8	Writing of EEPROM initial data. NOTE: Do not use this for the normal servicing.
VOL. (-) MIN	9	Display of the Adjustment MENU on the screen. Refer to the "ELECTRICAL ADJUSTMENT" (On-Screen Display Adjustment).

Method	Operations
Press the ATR button on the remote control for more than 2 seconds during PLAY.	Adjusting of the Tracking to the center position. Refer to the "MECHANICAL ADJUSTMENT" (GUIDE ROLLER) and "ELECTRICAL ADJUSTMENT" (PG SHIFTER).
Make the short circuit between the test point of SERVICE and the GND.	The EOT/BOT/Reel sensor do not work at this moment. Refer to the "PREPARATION FOR SERVICING"

PREVENTIVE CHECKS AND SERVICE INTERVALS

The following standard table depends on environmental conditions and usage. Unless maintenance is properly carried out, the following service intervals may be quite shortened as harmful effects may be had on other parts. Also, long term storage or misuse may cause transformation and aging of rubber parts.

Time Parts Name	500 hours	1,000 hours	1,500 hours	2,000 hours	3,000 hours	Notes
Audio Control Head	■	■	■	■	■	Clean those parts in contact with the tape.
Full Erase Head (Recorder only)	■	■	■	■	■	
Capstan Belt			■	■	●	Clean the rubber, and parts which the rubber touches.
Pinch Roller	■	■	■	■	■ ●	
Capstan DD Unit					●	
Loading Motor					●	
Tension Band					●	
Capstan Shaft	■	■	■	■	■	
Tape Running Guide Post	■	■	■	■	■	Replace when rolling becomes abnormal.
Cylinder Unit	■	■	■	■	●	Clean the Head

■ : Clean
● : Replace

CONFIRMATION OF HOURS USED

POWER ON total hours and PLAY/REC total hours can be checked on the screen.
Total hours are displayed in 16 system of notation.

NOTE: The confirmation of using hours will not be possible if clock has been set. To reset clock, either unplug AC cord and allow at least 5 seconds before Power On.

1. Set the VOLUME to minimum.
2. While holding down VOLUME button on front cabinet, press key 6 on remote control simultaneously.
3. After the confirmation of using hours, turn off the power.

INIT 00 83	Initial setting content of MEMORY IC.
POWER ON 0010	POWER ON total hours.
PLAY/REC 0003	PLAY/REC total hours.

(16 x 16 x 16 x thousands digit value) + (16 x 16 x hundreds digit value) + (16 x tens digit value) + (ones digit value)

PREVENTIVE CHECKS AND SERVICE INTERVALS

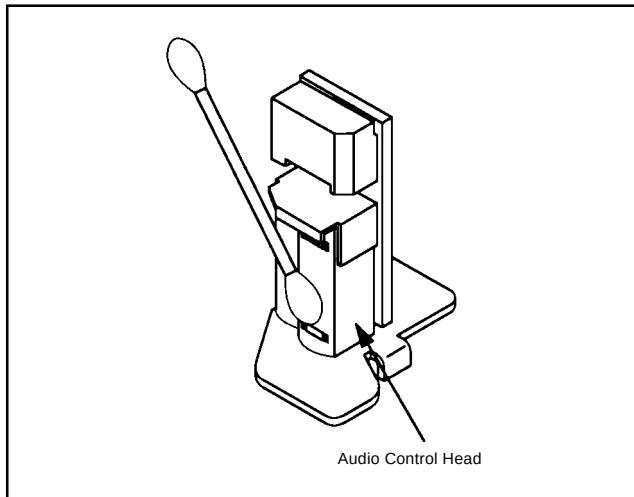
CLEANING

NOTE

After cleaning the heads with isopropyl alcohol, do not run a tape until the heads dry completely. If the heads are not completely dry and alcohol gets on the tape, damage may occur.

1. AUDIO CONTROL HEAD

Clean the Audio Control Head with the cotton stick soaked by alcohol. Clean the full erase head in the same manner. **(Refer to the figure below.)**



2. TAPE RUNNING SYSTEM

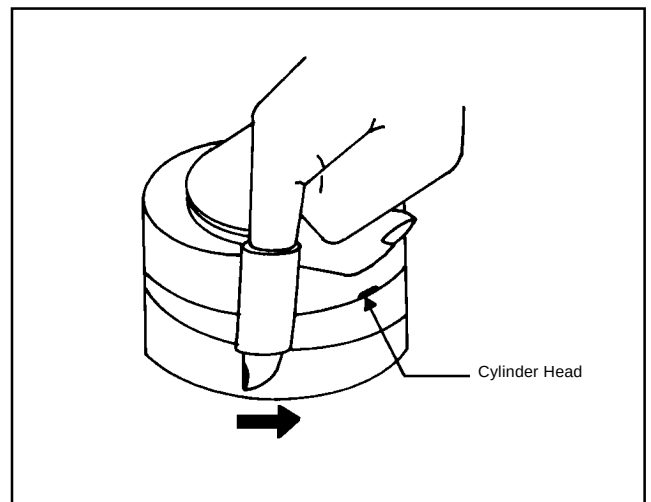
When cleaning the tape transport system, use the gauze moistened with isopropyl alcohol.

3. CYLINDER

Wrap a piece of chamois around your finger. Dip it in isopropyl alcohol. Hold it to the cylinder head softly. Turn the cylinder head counterclockwise to clean it (in the direction of the arrow). **(Refer to the figure below.)**

NOTE

Do not exert force against the cylinder head. Do not move the chamois upward or downward on the head. Use the chamois one by one.



WHEN REPLACING EEPROM (MEMORY) IC

If a service repair is undertaken where it has been required to change the MEMORY IC, the following steps should be taken to ensure correct data settings while making reference to TABLE 1.

NOTE: Initial Data setting will not be possible if clock has been set. To reset clock, either unplug AC cord and allow at least 5 seconds before Power On.

INI	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9	+A	+B	+C	+D	+E	+F
00	88	0A	62	63	43	14	34	09	51	38	30	66	00	40	00	10
10	B2	9A	92	93	00	00	00	15	08	00	A9	0F	94	3E	06	04
20	06	29	01	17	10	60	32	3A	DA	D7	10	15	20	25	26	27
30	28	29	2A	2C	2E	30	32	34	36	38	3A	3C	3E	40	41	42
40	43	44	45	46	47	48	49	4A	4B	4C	4D	4E	4F	50	51	52
50	53	54	55	56	57	58	59	5A	5B	5C	5D	5E	5F	60	61	62
60	63	64	66	69	6D	74	79	7C	7E	7F	---	---	---	---	---	---

Table 1

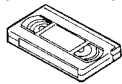
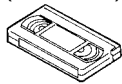
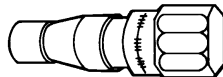
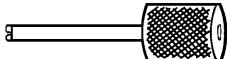
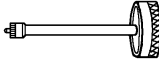
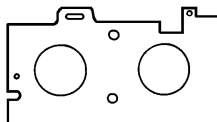
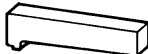
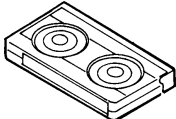
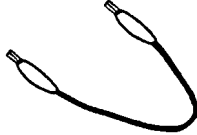
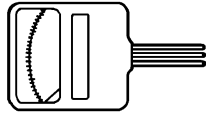
1. Enter DATA SET mode by setting VOLUME to minimum.
2. While holding down VOLUME button on front cabinet, press key 6 on remote control simultaneously. ADDRESS and DATA should appear as FIG 1.

	ADDRESS	DATA
INIT	00	83
POWER ON	0010	
PLAY/REC	0003	

Fig. 1

3. ADDRESS is now selected and should "blink". Using the PLAY or STOP button on the remote, step through the ADDRESS until required ADDRESS to be changed is reached.
4. Press ENTER to select DATA. When DATA is selected, it will "blink".
5. Again, step through the DATA using PLAY or STOP until required DATA value has been selected.
6. Pressing ENTER will take you back to ADDRESS for further selection if necessary.
7. Repeat steps 3 to 6 until all data has been checked.
8. When satisfied correct DATA has been entered, turn POWER off (return to STANDBY MODE) to finish DATA input. The unit will now have the correct DATA for the new MEMORY IC.

SERVICING FIXTURES AND TOOLS

(For 2 heads model) VHS Alignment Tape JG001 (VN ₂ S-LI6 ³) JG001A (VN ₂ S-CO1 ³) JG001Q (VN ₂ S-LI6 ³ H) JG001T (VN ₂ S-X6 ³) 	(For 4 heads model) VHS Alignment Tape JG001B (VN ₁ S-LI6 ³) JG001I (VN ₁ S-CO1 ³) JG001P (VN ₁ S-LI6 ³ H) JG001S (VN ₁ S-X6 ³) 	JG002B Adapter JG002E Dial Torque Gauge (10~90gf•cm) JG002F (60~600gf•cm) 	JG005 Post Adjustment Screwdriver Part No. SV-TG0-030-000 (small) 
JG153 X Value Adjustment Screwdriver 	JG022 Master Plane 	JG024A Reel Disk Height Adjustment Jig 	JG100A Torque Tape (VHT-063) 
JG154 Cable 	Tentelometer 		

Ref. No.	Part No.	Parts Name	Remarks
JG001	APJG001000	VHS Alignment Tape (For 2 heads model)	Monoscope, 6KHz
JG001A	APJG001A00	VHS Alignment Tape (For 2 heads model)	Color Bar, 1KHz
JG001Q	APJG001Q00	VHS Alignment Tape (For 2 heads model)	Hi-Fi Audio
JG001T	APJG001T00	VHS Alignment Tape (For 2 heads model)	X Value Adjustment
JG001B	APJG001B00	VHS Alignment Tape (For 4 heads model)	Monoscope, 6KHz
JG001I	APJG001I00	VHS Alignment Tape (For 4 heads model)	Color Bar, 1KHz
JG001P	APJG001P00	VHS Alignment Tape (For 4 heads model)	Hi-Fi Audio
JG001S	APJG001S00	VHS Alignment Tape (For 4 heads model)	X Value Adjustment
JG002B	APJG002B00	Adapter	VSR Torque, Brake Torque (S Reel/T Reel Ass'y)
JG002E	APJG002E00	Dial Torque Gauge (10~90gf•cm)	Brake Torque (T Reel Ass'y)
JG002F	APJG002F00	Dial Torque Gauge (60~600gf•cm)	VSR Torque, Brake Torque (S Reel)
JG005	APJG005000	Post Adjustment Screwdriver	Guide Roller Adjustment
JG153	APJG153000	X Value Adjustment Screwdriver	X Value Adjustment
JG022	APJG022000	Master Plane	Reel Disk Height Adjustment
JG024A	APJG024A00	Reel Disk Height Adjustment Jig	Reel Disk Height Adjustment
JG100A	APJG100A00	Torque Tape (VHT-063)	Playback Torque, Back Tension Torque During Playback
JG154	APJG154000	Cable	Used to connect the test point of SERVICE and GROUND

PREPARATION FOR SERVICING

How to use the Servicing Fixture

1. Unplug the connector CP757 and CP353, then remove the TV/VCR Block from the set.
2. Remove the Operation PCB from the set, then connect it with the Syscon PCB.
If necessary, connect CP353. (Front A/V Jack Input Terminal)
3. Short circuit between **TP1001** and **Ground** with the cable JG154.
(Refer to MAJOR COMPONENTS LOCATION GUIDE)
4. The EOT, BOT and Reel Sensor do not work at this moment.
At that time, the STOP/EJECT button is available to insert and eject the Cassette Tape.

MECHANICAL ADJUSTMENTS

1. CONFIRMATION AND ADJUSTMENT

Read the following NOTES before starting work.

- Place an object which weighs between 450g~500g on the Cassette Tape to keep it steady when you want to make the tape run without the Cassette Holder. (Do not place an object which weighs over 500g.)
- When you activate the deck without the Cassette Holder, short circuit between **TP1001** and **GND**. (Refer to **ELECTRICAL ADJUSTMENT PARTS LOCATION GUIDE**) In this condition the BOT/EOT/Reel Sensor will not function.

1-1: CONFIRMATION AND ADJUSTMENT OF REEL DISK HEIGHT

1. Turn on the power and set to the STOP mode.
2. Set the master plane (**JG022**) and reel disk height adjustment jig (**JG024A**) on the mechanism framework, taking care not to scratch the drum, as shown in **Fig. 1-1-A**.
3. While turning the reel and confirm the following points. Check if the surface "A" of reel disk is lower than the surface "B" of reel disk height adjustment jig (**JG024A**) and is higher than the surface "C". If it is not passed, place the height adjustment washers and adjust to 10(+2, -0)mm.
4. Adjust the other reel in the same way.

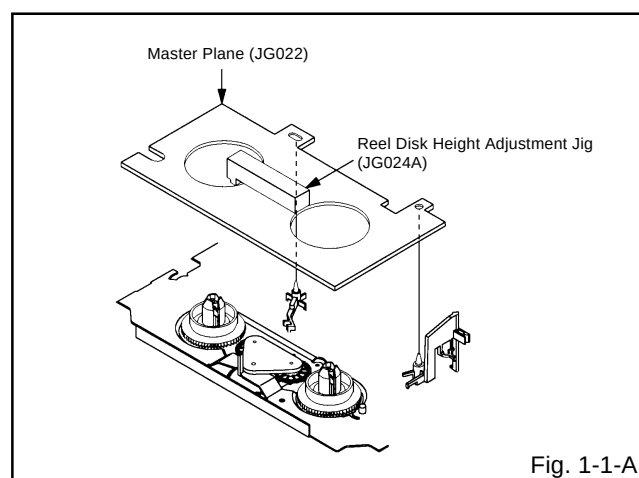


Fig. 1-1-A

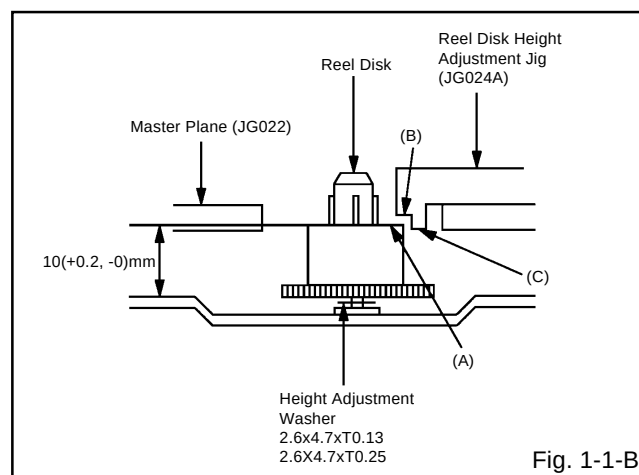


Fig. 1-1-B

1-2: CONFIRMATION AND ADJUSTMENT OF TENSION POST POSITION

1. Set to the PLAY mode.
2. Adjust the adjusting parts for the Tension Arm position so that the Tension Arm top is within the standard line of Main Chassis.
3. While turning the S Reel clockwise, confirm that the edge of the Tension Arm is located in the position described above.

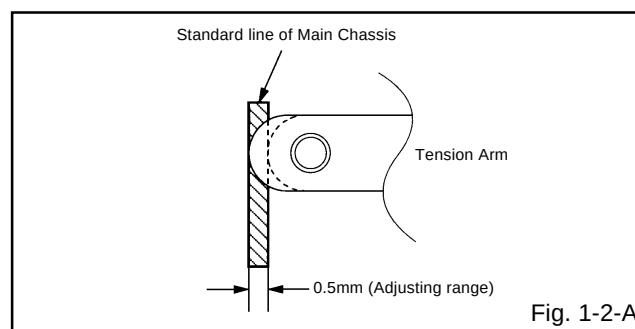


Fig. 1-2-A

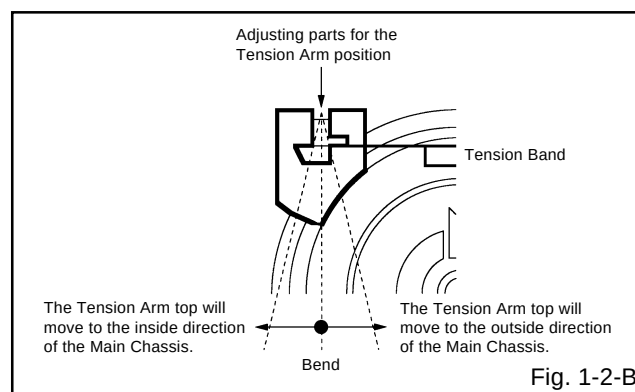


Fig. 1-2-B

1-3: CONFIRMATION OF PLAYBACK TORQUE AND BACK TENSION TORQUE DURING PLAYBACK

1. Load a video tape (T-120) recorded in standard speed mode. Set the unit to the PLAY mode.
2. Install the tentelometer as shown in **Fig. 1-3**. Confirm that the meter indicates $20 \pm 2\text{gf}$ in the beginning of playback.

• USING A CASSETTE TYPE TORQUE TAPE (**JG100A**)

1. After confirmation and adjustment of Tension Post position (Refer to item 1-2), load the cassette type torque tape (**JG100A**) and set to the PLAY mode.
2. Confirm that the right meter of the torque tape indicates 50~90gf•cm during playback in SP mode.
3. Confirm that the left meter of the torque tape indicates 25~40gf•cm during playback in SP mode.

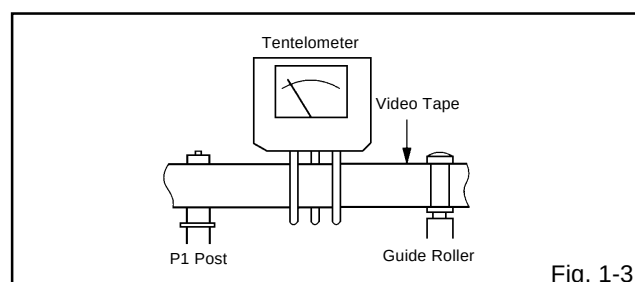


Fig. 1-3

MECHANICAL ADJUSTMENTS

1-4: CONFIRMATION OF VSR TORQUE

1. Install the Torque Gauge (**JG002F**) and Adapter (**JG002B**) on the S Reel. Set to the Picture Search (Rewind) mode. (Refer to Fig.1-4-B)
2. Then, confirm that it indicates 120~180gf•cm.

NOTE

Install the Torque Gauge on the reel disk firmly. Press the REW button to turn the reel disk.

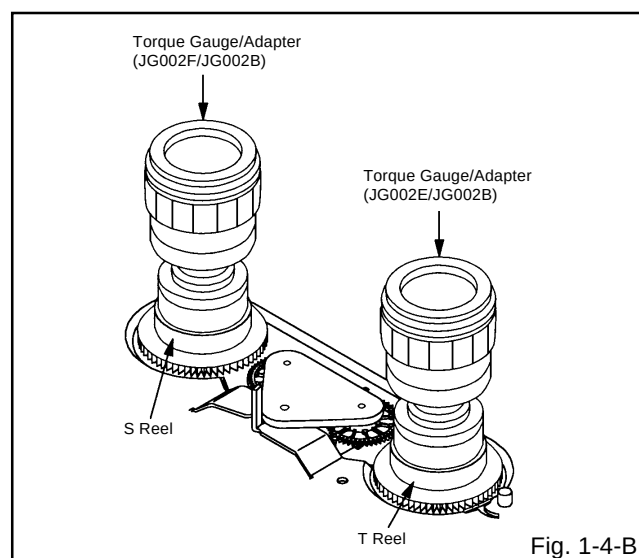
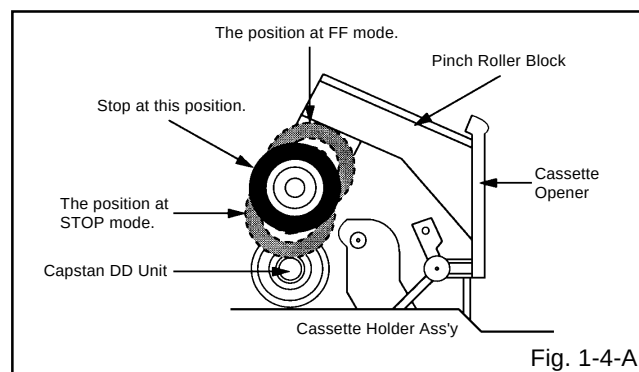
1-5: CONFIRMATION OF REEL BRAKE TORQUE

(S Reel Brake) (Refer to Fig. 1-4-B)

1. Once set to the Fast Forward mode then set to the Stop mode. While, unplug the AC cord when the Pinch Roller Block is on the position of Fig. 1-4-A.
2. Move the Idler Ass'y from the S Reel.
3. Install the Torque Gauge (**JG002F**) and Adapter (**JG002B**) on the S Reel. Turn the Torque Gauge (**JG002F**) clockwise.
4. Then, confirm that it indicates 60~100gf•cm.

(T Reel Brake) (Refer to Fig. 1-4-B)

1. Once set to the Fast Forward mode then set to the Stop mode. While, unplug the AC cord when the Pinch Roller Block is on the position of Fig. 1-4-A.
2. Move the Idler Ass'y from the T Reel.
3. Install the Torque Gauge (**JG002E**) and Adapter (**JG002B**) on the T reel. Turn the Torque Gauge (**JG002E**) counterclockwise.
4. Then, confirm that it indicates 30~50gf•cm.



NOTE

If the torque is out of the range, replace the following parts.

Check item	Replacement Part
1-4	Idler Ass'y/Clutch Ass'y
1-5	S Reel side: S Reel/Tension Band/Tension Connect/Tension Arm Ass'y T Reel side: T Reel/T Brake Band//T Brake Spring/T Brake Arm

2. CONFIRMATION AND ADJUSTMENT OF TAPE RUNNING MECHANISM

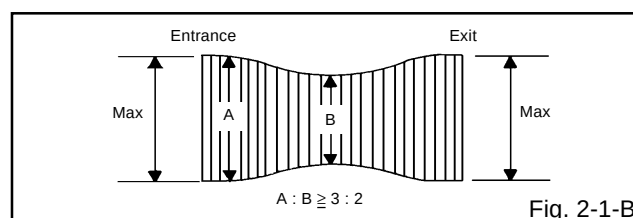
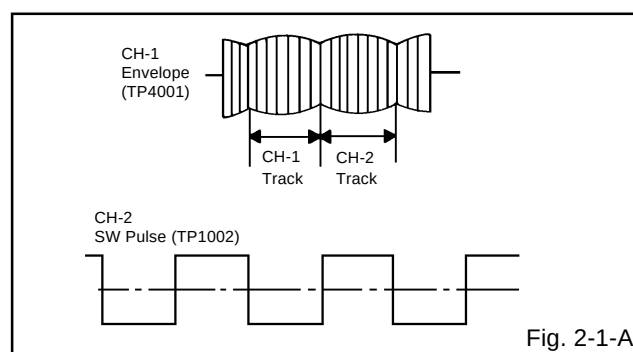
Tape Running Mechanism is adjusted precisely at the factory. Adjustment is not necessary as usual. When you replace the parts of the tape running mechanism because of long term usage or failure, the confirmation and adjustment are necessary.

2-1: GUIDE ROLLER

1. Playback the VHS Alignment Tape (**JG001** or **JG001B**). (Refer to **SERVICING FIXTURE AND TOOLS**)
2. Connect CH-1 of the oscilloscope to **TP4001 (Envelope)** and CH-2 to **TP1002 (SW Pulse)**.
3. Press and hold the Tracking-Auto button on the remote control more than 2 seconds to set tracking to center.
4. Trigger with SW Pulse and observe the envelope. (Refer to Fig. 2-1-A)
5. When observing the envelope, adjust the Adjusting Driver (**JG005**) slightly until the envelope will be flat. Even if you press the Tracking Button, adjust so that flatness is not moved so much.
6. Adjust so that the A : B ratio is better than 3 : 2 as shown in Fig. 2-1-B, even if you press the Tracking Button to move the envelope (The envelope waveform will begin to decrease when you press the Tracking Button).
7. Adjust the PG shifter during playback. (Refer to the **ELECTRICAL ADJUSTMENTS**)

NOTE

After adjustment, confirm and adjust A/C head. (Refer to item 2-2)

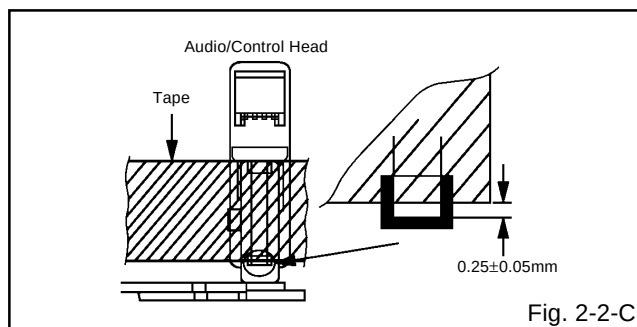
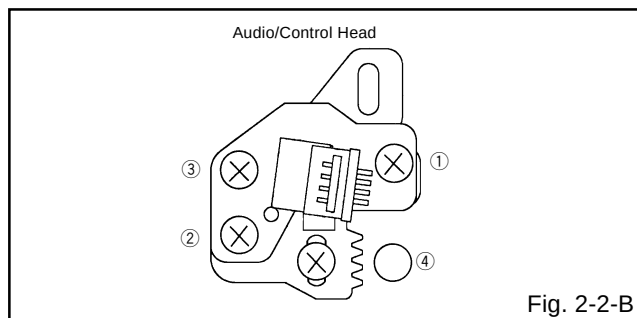
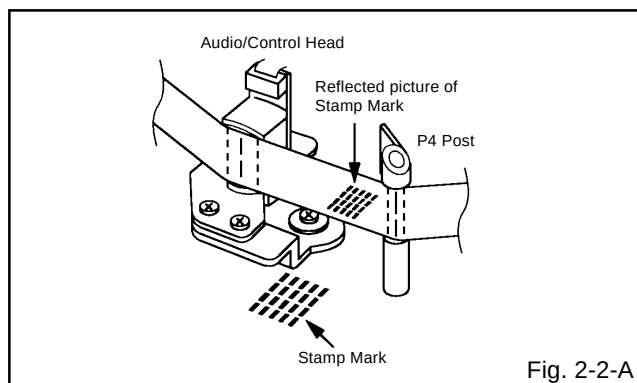


MECHANICAL ADJUSTMENTS

2-2: CONFIRMATION AND ADJUSTMENT OF AUDIO/CONTROL HEAD

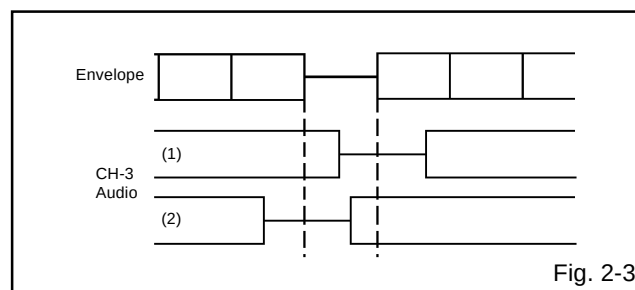
When the Tape Running Mechanism does not work well, adjust the following items.

1. Playback the VHS Alignment Tape (**JG001 or JG001B**) .
(Refer to **SERVICING FIXTURE AND TOOLS**)
2. Confirm that the reflected picture of stamp mark is appeared on the tape prior to P4 Post as shown in **Fig. 2-2-A**.
 - a) When the reflected picture is distorted, turn the screw ① clockwise until the distortion is disappeared.
 - b) When the reflected picture is not distorted, turn the screw ① counterclockwise until little distortion is appeared, then adjust the a).
3. Turn the screw ② to set the audio level to maximum.
4. Confirm that the bottom of the Audio/ Control Head and the bottom of the tape is shown in **Fig. 2-2-C**.
 - c) When the height is not correct, turn the screw ③ to adjust the height. Then, adjust the 1~3 again.



2-3: TAPE RUNNING ADJUSTMENT (X VALUE ADJUSTMENT)

1. Confirm and adjust the height of the Reel Disk.
(Refer to item 1-1)
2. Confirm and adjust the position of the Tension Post.
(Refer to item 1-2)
3. Adjust the Guide Roller. (Refer to item 2-1)
4. Confirm and adjust the Audio/Control Head.
(Refer to item 2-2)
5. Connect CH-1 of the oscilloscope to **TP4001**, CH-2 to **TP1002** and CH-3 to **HOT side of Audio Out Jack**.
6. Playback the VHS Alignment Tape (**JG001S or JG001T**). (Refer to **SERVICING FIXTURE AND TOOLS**)
7. Press and hold the Tracking-Auto button on the remote control more than 2 seconds to set tracking to center.
8. Set the X Value adjustment driver (**JG153**) to the ④ of **Fig. 2-2-B**. Adjust X value so that the envelope waveform output becomes maximum. Check if the relation between Audio and Envelope waveform becomes (1) or (2) of **Fig. 2-3**.

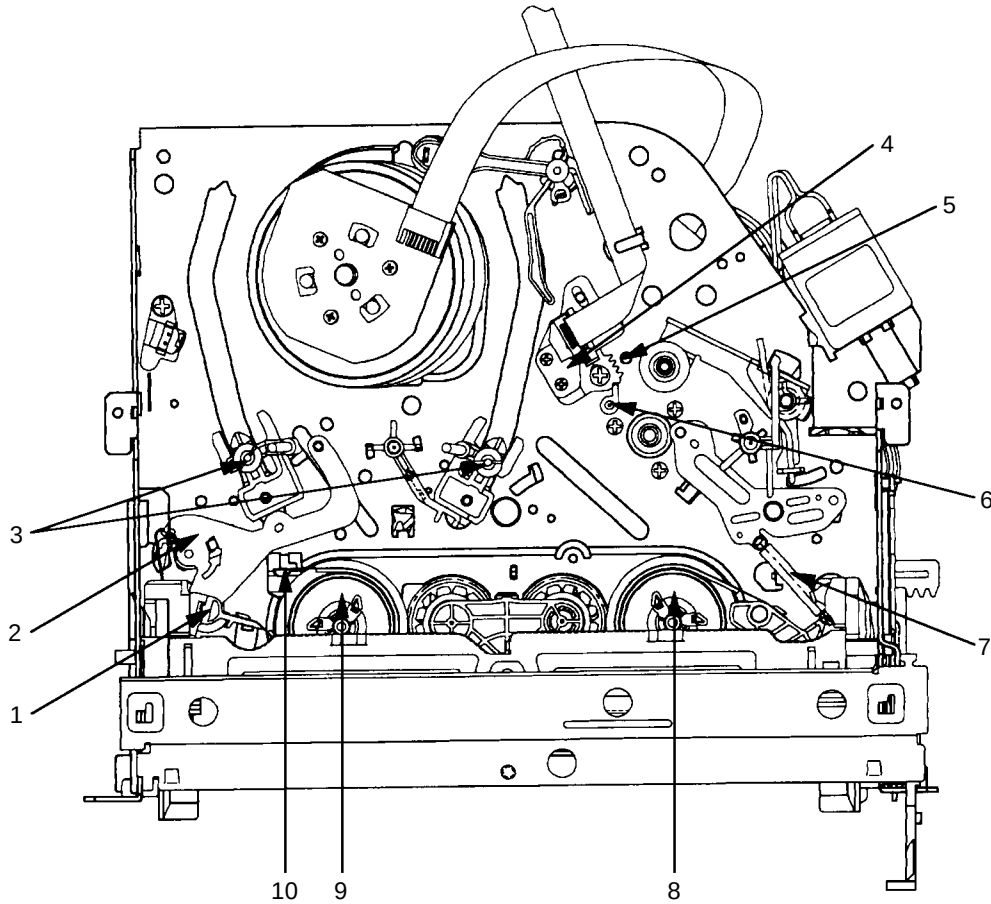


2-4: CONFIRM HI-FI AUDIO (Hi-Fi model only)

1. Connect CH-1 of the oscilloscope to **TP1002** and CH-2 to the **Hi-Fi Audio Out Jack**.
2. Playback the VHS Alignment Tape (**JG001P or JG001Q**).
(Refer to **SERVICING FIXTURE AND TOOLS**)
3. Press and hold the Tracking-Auto button on the remote control more than 2 seconds to set tracking to center.
4. Press the Tracking Up button and count number of steps which the audio output is changed from Hi-Fi (10KHz) to MONO (6KHz).
5. Press and hold the Tracking-Auto button on the remote control more than 2 seconds to set tracking to center.
6. Press the Tracking Down button and count number of steps which the audio output is changed from Hi-Fi (10KHz) to MONO (6KHz).
7. If the difference are more than 3 steps, set the X Value adjustment driver (**JG153**) to ④ of **Fig. 2-2-B**. Change the X Value and adjust it so that the value becomes within 2 steps.

MECHANICAL ADJUSTMENTS

3. MECHANISM ADJUSTMENT PARTS LOCATION GUIDE



- | | |
|-----------------------------------|--|
| 1. Tension Connect | 6. P4 Post |
| 2. Tension Arm | 7. T Brake Spring |
| 3. Guide Roller | 8. T Reel |
| 4. Audio/Control Head | 9. S Reel |
| 5. X value adjustment driver hole | 10. Adjusting parts for the Tension Arm position |

ELECTRICAL ADJUSTMENTS

1. BEFORE MAKING ELECTRICAL ADJUSTMENTS

Read and perform these adjustments when repairing the circuits or replacing electrical parts or PCB assemblies.

CAUTION

- Use an isolation transformer when performing any service on this chassis.
- Before removing the anode cap, discharge electricity because it contains high voltage.
- When removing a PCB or related component, after unfastening or changing a wire, be sure to put the wire back in its original position.
Inferior silicon grease can damage IC's and transistors.
- When replacing IC's and transistors, use only specified silicon grease (YG6260M).
Remove all old silicon before applying new silicon.

On-Screen Display Adjustment

1. Unplug the AC plug for more than 5 seconds to set the clock to the non-setting state. Then, set the volume level to minimum.
2. Press the VOL. DOWN button on the set and the Channel button **(9)** on the remote control simultaneously to appear the adjustment mode on the screen as shown in **Fig. 1-1**.

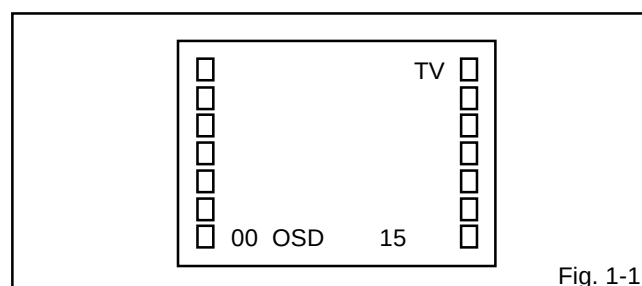


Fig. 1-1

3. Use the Channel UP/DOWN button or Channel button **(0-9)** on the remote control to select the options shown in **Fig. 1-2**.
4. Press the MENU button on the remote control to end the adjustments.

NO.	FUNCTION	NO.	FUNCTION
00	OSD H	13	BRIGHTNESS
01	CUT OFF	14	CONTRAST
02	RF AGC DELAY	15	COLOR
03	VIF VCO	16	TINT
04	H VCO	17	SHARPNESS
05	H PHASE	18	FM LEVEL
06	V SIZE	19	LEVEL
07	V SHIFT	20	SEPARATION 1
08	R DRIVE	21	SEPARATION 2
09	B DRIVE	22	TEST MONO
10	R CUT OFF	23	TEST STEREO
11	G CUT OFF	24	X-RAY TEST
12	B CUT OFF		

Fig. 1-2

2. BASIC ADJUSTMENTS (VCR SECTION)

2-1: PG SHIFTER

1. Connect CH-1 on the oscilloscope to **TP1002** and CH-2 to **pin 4 of CP1003**.
2. Playback the alignment tape. **(JG001A)**
3. Press and hold the Tracking-Auto button on the remote control more than 2 seconds to set tracking to center.
4. Press the VOL. DOWN button on the set and the channel button **(3)** on the remote control simultaneously until the indicator REC disappears. If the indicator REC disappears, adjustment is completed.

(If the above adjustments doesn't work well:)

5. Press the VOL. DOWN button on the set and the channel button **(3)** on the remote control simultaneously until the indicator REC disappears.
6. When the REC indicator is blinking, press both VOL. DOWN button on the set and the channel button **(4)** on the remote control simultaneously and adjust the Tracking +/- button until the arising to the down of Head Switching Pulse becomes $6.5 \pm 0.5H$.
(Refer to Fig. 2-1-A, B)
7. Press the Tracking Auto button.

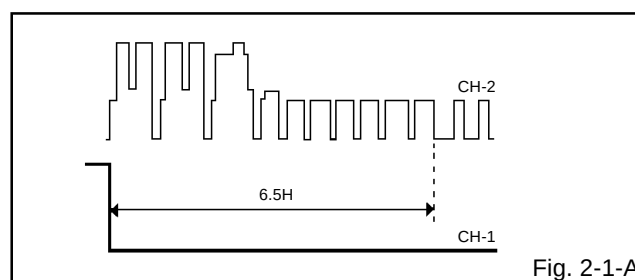


Fig. 2-1-A

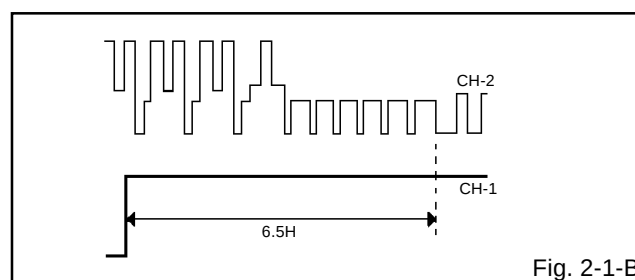


Fig. 2-1-B

2-2: VCO FREERUN

1. Place the set with Aging Test for more than 10 minutes.
2. Receive the VHF HIGH.
3. Disconnect the Antenna while receiving the VHF HIGH and set to the Noise screen.
4. Once turn off the Power and turn on the Power again.
5. Approx. 3 seconds later, input the Antenna again.
6. Connect the digital voltmeter between the **pin 5 of CP351** and the **pin 1 (GND) of CP351**.
7. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(03)** on the remote control to select "VIF VCO".
8. Press the VOL. UP/DOWN button on the remote control until the digital voltmeter is 2.5V.
9. After the 2.5V adjustment, countdown the VIF VCO step No. by 1 step with the VOL. DOWN button.

ELECTRICAL ADJUSTMENTS

2-3: RF AGC DELAY

1. Receive the VHF HIGH (63dB).
2. Connect the digital voltmeter between the **pin 5 of CP351** and the **pin 1 (GND) of CP351**.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(02)** on the remote control to select "RF AGC DELAY".
4. Press the VOL. UP/DOWN button on the remote control until the digital voltmeter is $2.9V \pm 0.15V$.

(TV SECTION)

2-4: CONSTANT VOLTAGE

1. Connect the digital voltmeter to the **TP601**.
2. Set condition is AV MODE without signal.
3. Using the remote control, set the brightness and contrast to normal position.
4. Adjust the **VR502** until the digital voltmeter is $135 \pm 0.5V$.

2-5: CUT OFF

1. Adjust the unit to the following settings.
R CUT OFF=128, G CUT OFF=128, B CUT OFF=128,
BRIGHTNESS=128, CONTRAST=100
2. Place the set with Aging Test for more than 15 minutes.
3. Set condition is AV MODE without signal.
4. Using the remote control, set the brightness and contrast to normal position.
5. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(01)** on the remote control to select "CUT OFF".
6. Adjust the **Screen Volume** until a dim raster is obtained.

2-6: WHITE BALANCE

NOTE: Adjust after performing CUT OFF adjustment.

1. Place the set with Aging Test for more than 15 minutes.
2. Receive the color bar pattern.
3. Using the remote control, set the brightness and contrast to normal position.
4. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(10)** on the remote control to select "R CUT OFF".
5. Using the VOL. UP/DOWN button on the remote control, adjust the R CUT OFF.
6. Press the CH. UP/DOWN button on the remote control to select the "R DRIVE", "B DRIVE", "G CUT OFF" or "B CUT OFF".
7. Using the VOL. UP/DOWN button on the remote control, adjust the R DRIVE, B DRIVE, G CUT OFF or B CUT OFF.
8. Perform the above adjustments 6 and 7 until the white color is looked like a white.

2-7: FOCUS

1. Receive the monoscope pattern.
2. Using the remote control, set the brightness and contrast to normal position.
3. Turn the Focus Volume fully counterclockwise once.
4. Adjust the **Focus Volume** until picture is distinct.

2-8: HORIZONTAL PHASE

1. Receive the center cross signal from the Pattern Generator.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(05)** on the remote control to select "H PHASE".
4. Press the VOL. UP/DOWN button on the remote control until the right and left screen size of the vertical line becomes the same.

2-9: VERTICAL SHIFT

1. Receive the center cross signal from the Pattern Generator.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(07)** on the remote control to select "V SHIFT".
4. Press the VOL. UP/DOWN button on the remote control until the horizontal line becomes fit to the notch of the shadow mask.

2-10: VERTICAL SIZE

1. Receive the cross hatch signal from the Pattern Generator.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(06)** on the remote control to select "V SIZE".
4. Press the VOL. UP/DOWN button on the remote control until the rectangle on the center of the screen becomes square.
5. Receive a broadcast and check if the picture is normal.

2-11: SUB BRIGHTNESS

1. Receive the monoscope pattern. (RF Input)
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(13)** on the remote control to select "BRIGHTNESS".
4. Press the VOL. UP/DOWN button on the remote control until the white 10% is starting to be visible
5. Receive the monoscope pattern. (Audio Video Input)
6. Press the INPUT SELECT button on the remote control to set to the AV mode. Then perform the above adjustments 2~4.

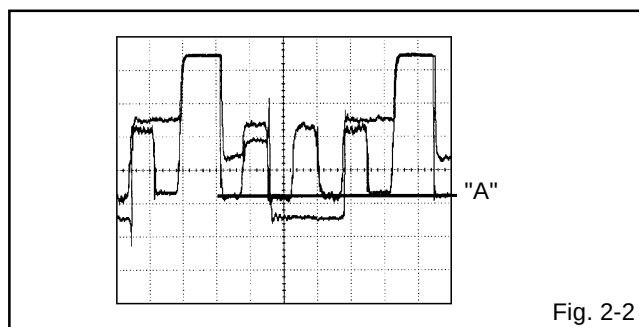
2-11: SUB CONTRAST MANUAL

1. Receive the color bar pattern. (RF Input)
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(14)** on the remote control to select "CONTRAST".
4. Press the VOL. UP/DOWN button on the remote control until the contrast STEP No. becomes "100".
Receive the color bar pattern. (Audio Video Input)
5. Press the AV button on the remote control to set to the AV mode. Then perform the above adjustments 2~4.

ELECTRICAL ADJUSTMENTS

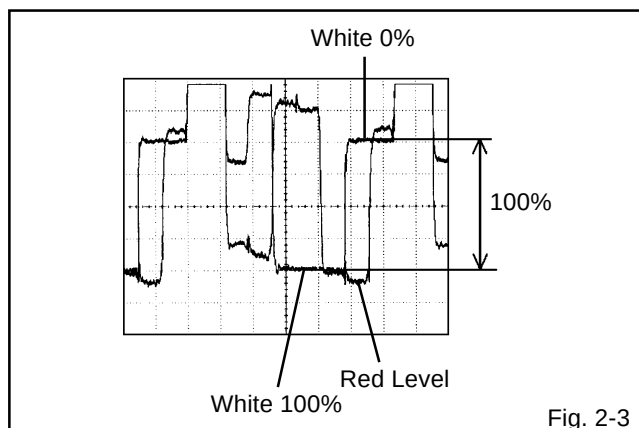
2-13: SUB TINT

1. Receive the color bar pattern. (RF Input)
2. Connect the oscilloscope to **TP801**.
3. Using the remote control, set the brightness, contrast, color and tint to normal position.
4. Activate the adjustment mode display of **Fig. 1-1** and press the channel button (**16**) on the remote control to select "TINT".
5. Press the VOL. UP/DOWN button on the remote control until the section "A" becomes a straight line.
(Refer to Fig. 2-2)
6. Receive the color bar pattern. (Audio Video Input)
7. Press the INPUT SELECT button on the remote control to set to the AV mode. Then perform the above adjustments 2~5.



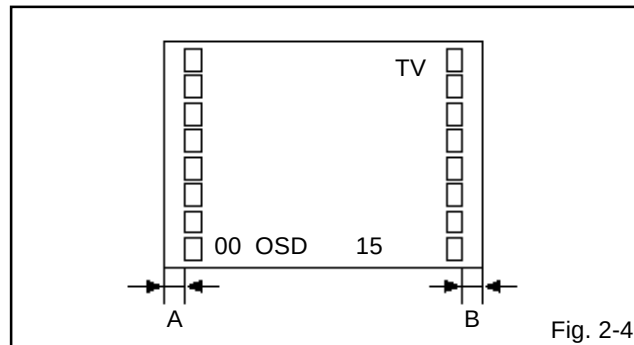
2-14: SUB COLOR

1. Receive the color bar pattern. (RF Input)
2. Connect the oscilloscope to **TP803**.
3. Using the remote control, set the brightness, contrast, color and tint to normal position.
4. Activate the adjustment mode display of **Fig. 1-1** and press the channel button (**15**) on the remote control to select "COLOR".
5. Adjust the VOLTS RANGE VARIABLE knob of the oscilloscope until the range between white 100% and 0% is set to 4 scales on the screen of the oscilloscope.
6. Press the VOL. UP/DOWN button on the remote control until the red color level is adjusted to 110% of the white level. (Refer to Fig. 2-3)
7. Receive the color bar pattern. (Audio Video Input)
8. Press the INPUT SELECT button on the remote control to set to the AV mode. Then perform the above adjustments 2~6.



2-15: OSD HORIZONTAL

1. Activate the adjustment mode display of **Fig. 1-1**.
2. Press the VOL. UP/DOWN button on the remote control until the difference of A and B becomes minimum.
(Refer to Fig. 2-4)



2-16: SUB SHARPNESS

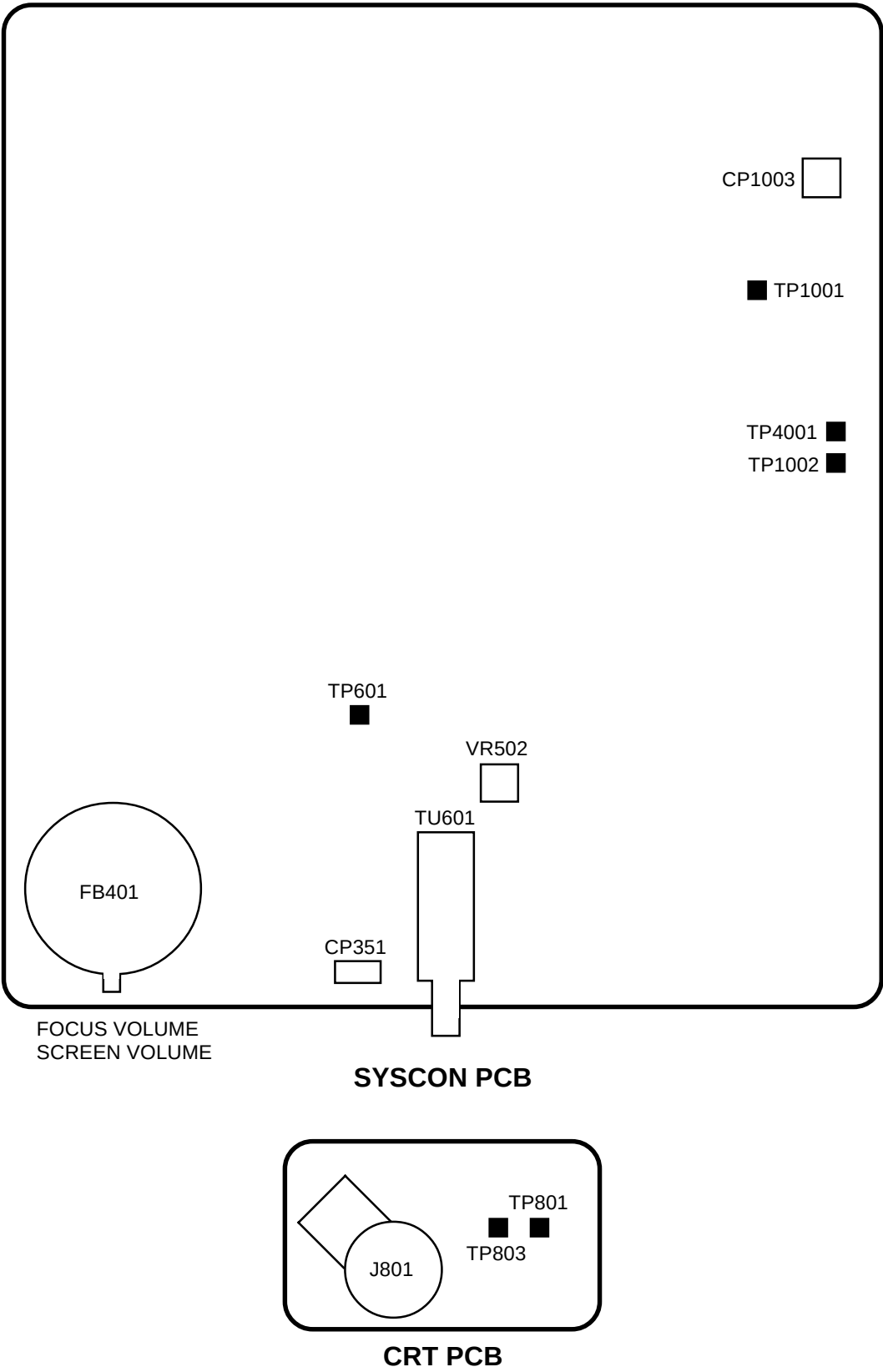
1. Activate the adjustment mode display of **Fig. 1-1** and press the channel button (**17**) on the remote control to select "SHARPNESS".
2. Check if the step No. of SHARPNESS is "40".
3. Press the AV button on the remote control to set to the AV mode. Then perform the above adjustments 1, 2.

2-17: H VCO

1. Activate the adjustment mode display of **Fig. 1-1** and press the channel button (**04**) on the remote control to select "H VCO".
2. Check if the step No. of H VCO is "4".

ELECTRICAL ADJUSTMENTS

3. ELECTRICAL ADJUSTMENT PARTS LOCATION GUIDE



ELECTRICAL ADJUSTMENTS

4. PURITY AND CONVERGENCE ADJUSTMENTS

NOTE

1. Turn the unit on and let it warm up for at least 30 minutes before performing the following adjustments.
2. Place the CRT surface facing east or west to reduce the terrestrial magnetism.
3. Turn ON the unit and demagnetize with a Degauss Coil.

4-1: STATIC CONVERGENCE (ROUGH ADJUSTMENT)

1. Tighten the screw for the magnet. Refer to the adjusted CRT for the position. **(Refer to Fig. 4-1)**
If the deflection yoke and magnet are in one body, untighten the screw for the body.
2. Receive the green raster pattern from the color bar generator.
3. Slide the deflection yoke until it touches the funnel side of the CRT.
4. Adjust center of screen to green, with red and blue on the sides, using the pair of purity magnets.
5. Switch the color bar generator from the green raster pattern to the crosshatch pattern.
6. Combine red and blue of the 3 color crosshatch pattern on the center of the screen by adjusting the pair of 4 pole magnets.
7. Combine red/blue (magenta) and green by adjusting the pair of 6 pole magnets.
8. Adjust the crosshatch pattern to change to white by repeating steps 6 and 7.

4-2: PURITY

NOTE

Adjust after performing adjustments in section 4-1.

1. Receive the green raster pattern from color bar generator.
2. Adjust the pair of purity magnets to center the color on the screen.
Adjust the pair of purity magnets so the color at the ends are equally wide.
3. Move the deflection yoke backward (to neck side) slowly, and stop it at the position when the whole screen is green.
4. Confirm red and blue colors.
5. Adjust the slant of the deflection yoke while watching the screen, then tighten the fixing screw.

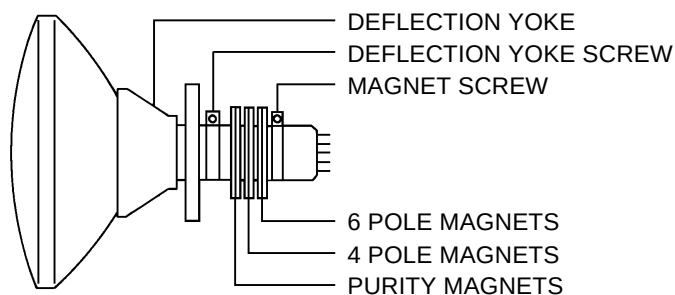


Fig. 4-1

4-3: STATIC CONVERGENCE

NOTE

Adjust after performing adjustments in section 4-2.

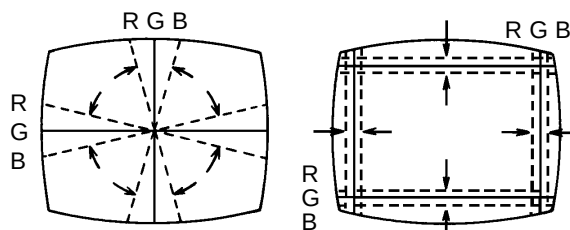
1. Receive the crosshatch pattern from the color bar generator.
2. Combine red and blue of the 3 color crosshatch pattern on the center of the screen by adjusting the pair of 4 pole magnets.
3. Combine red/blue (magenta) and green by adjusting the pair of 6 pole magnets.

4-4: DYNAMIC CONVERGENCE

NOTE

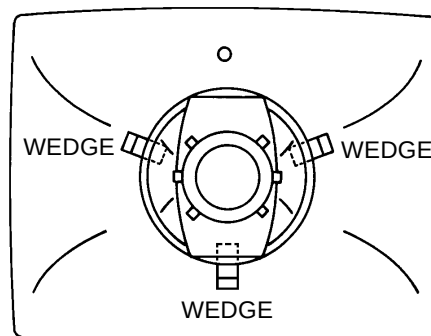
Adjust after performing adjustments in section 4-3.

1. Adjust the differences around the screen by moving the deflection yoke upward/downward and right/left.
(Refer to Fig. 4-2-a)
2. Insert three wedges between the deflection yoke and CRT funnel to fix the deflection yoke.
(Refer to Fig. 4-2-b)



UPWARD/DOWNWARD SLANT RIGHT/LEFT SLANT

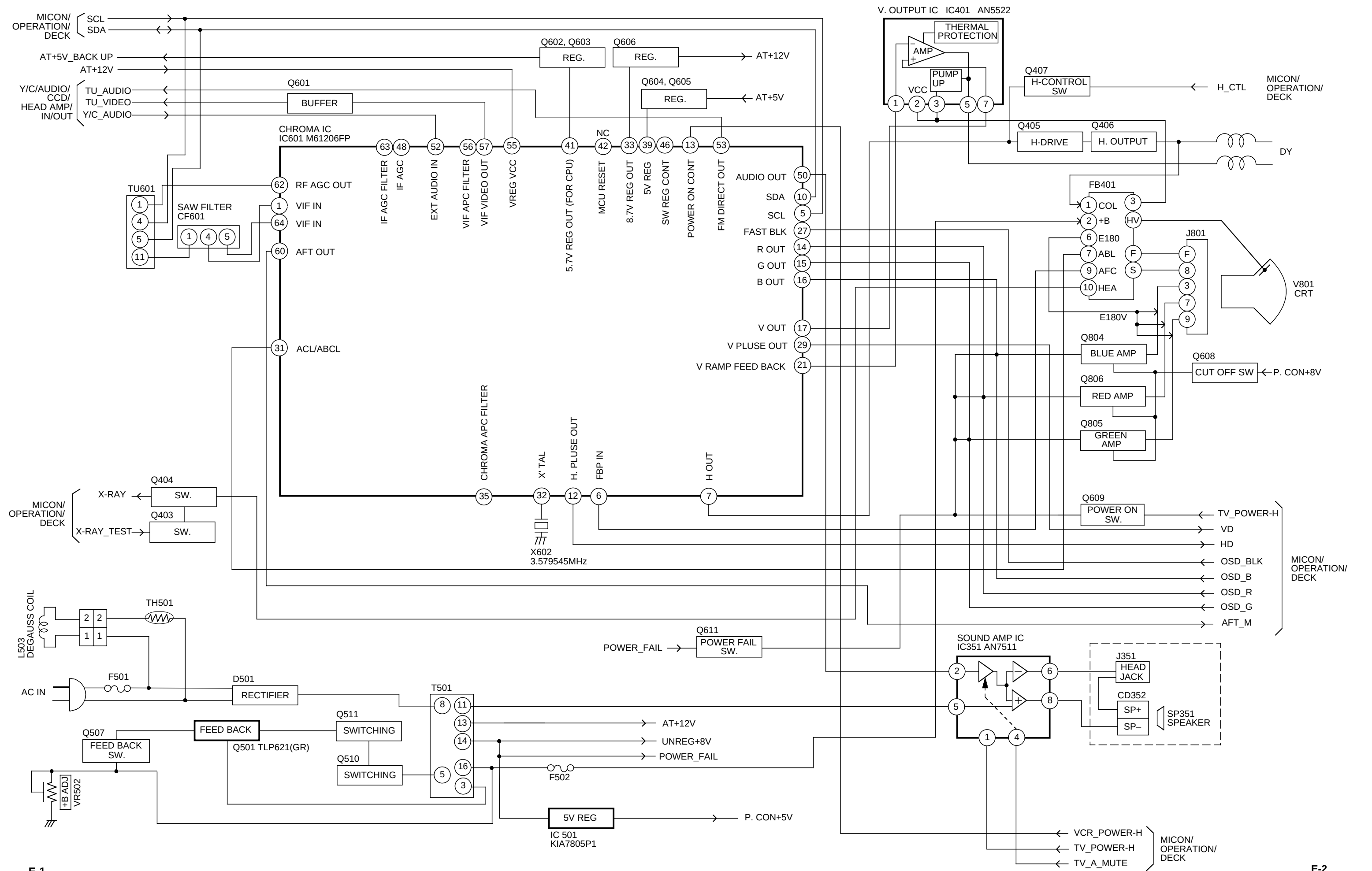
Fig. 4-2-a



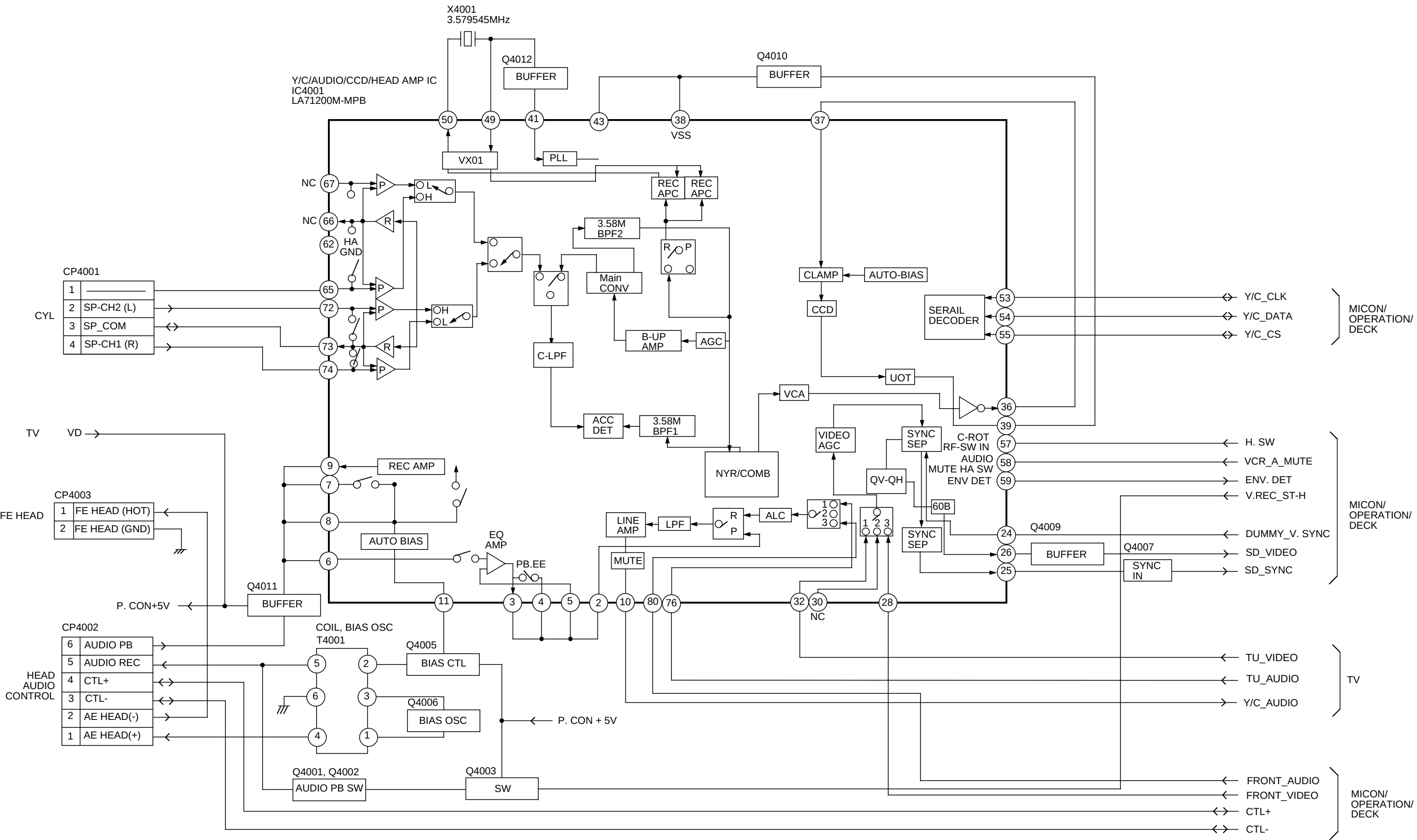
WEDGE POSITION

Fig. 4-2-b

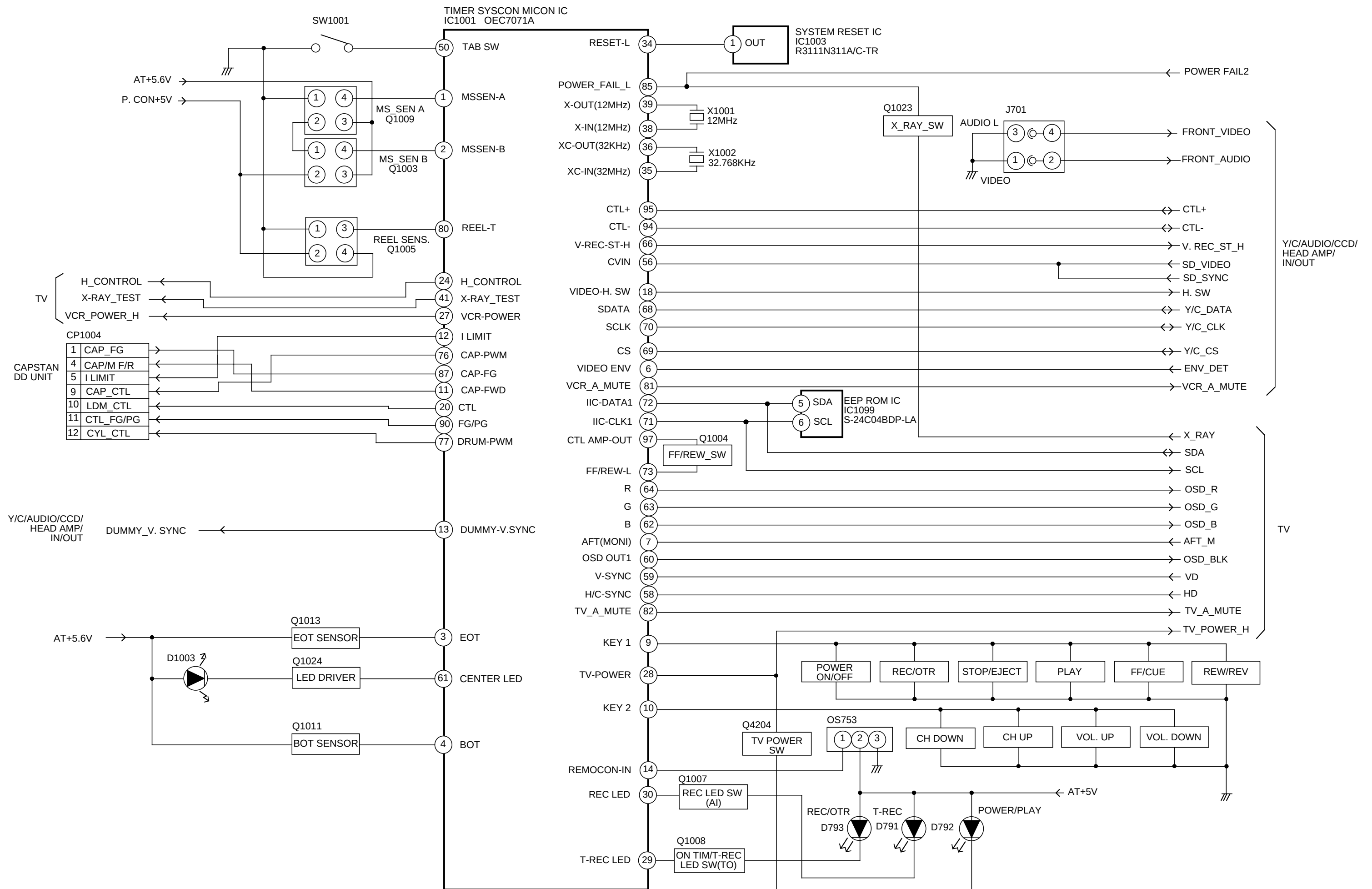
TV BLOCK DIAGRAM



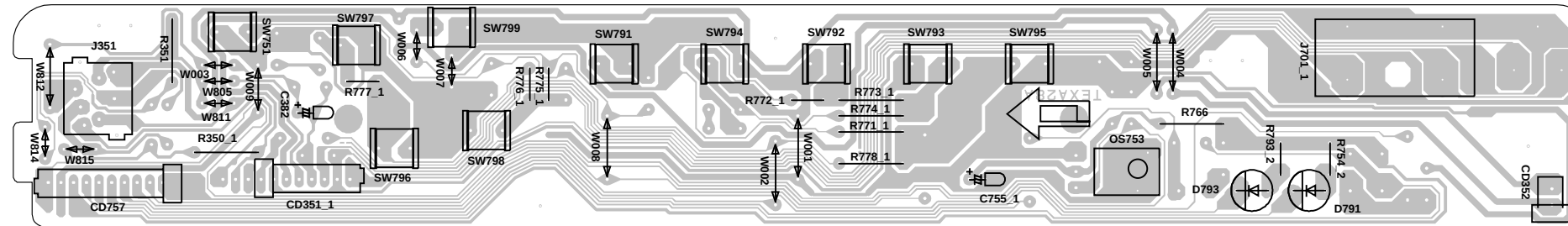
Y/C/AUDIO/CCD/HEAD AMP/IN/OUT BLOCK DIAGRAM



MICON/OPERATION/DECK BLOCK DIAGRAM



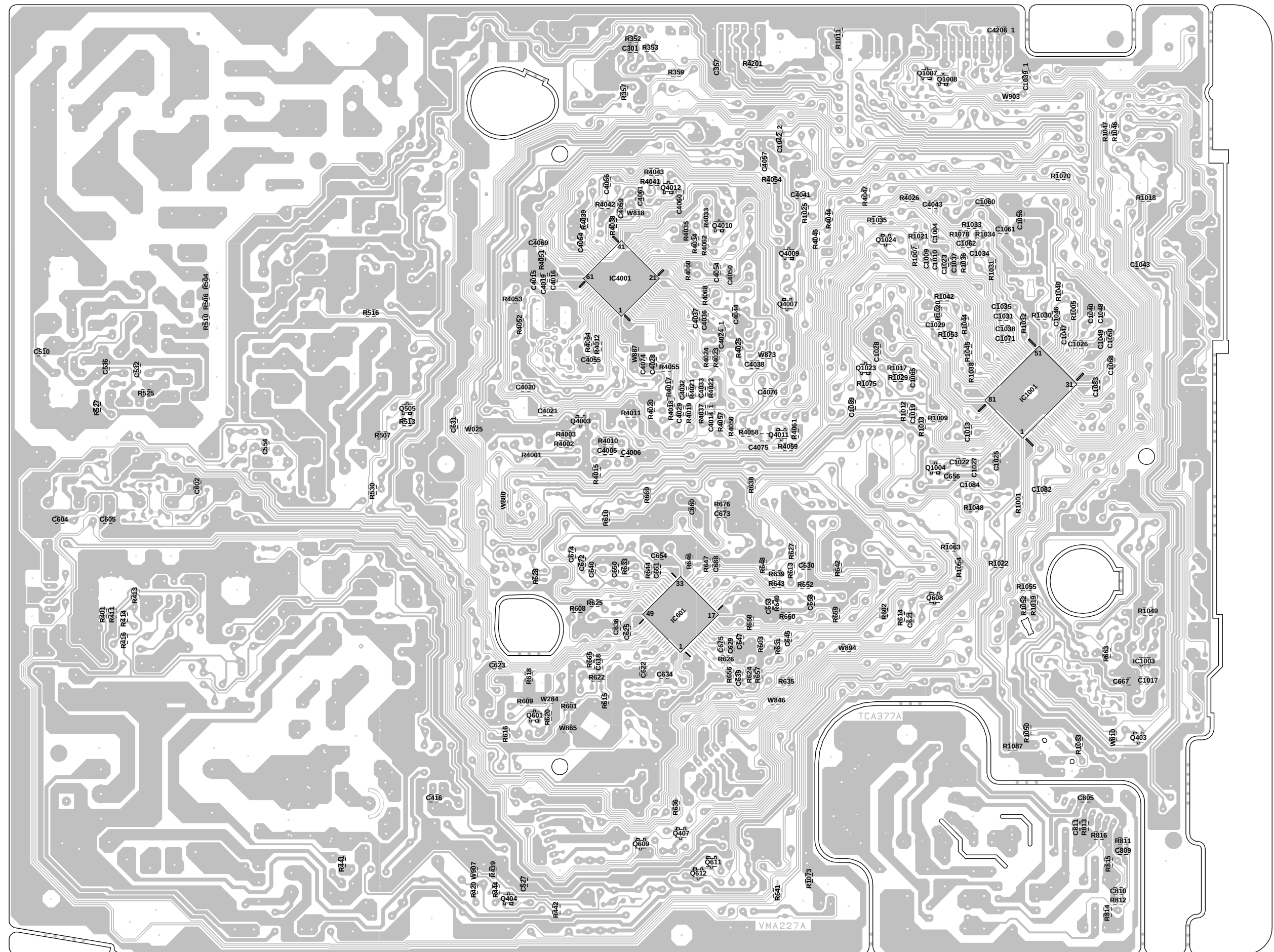
OPERATION SOLDER SIDE



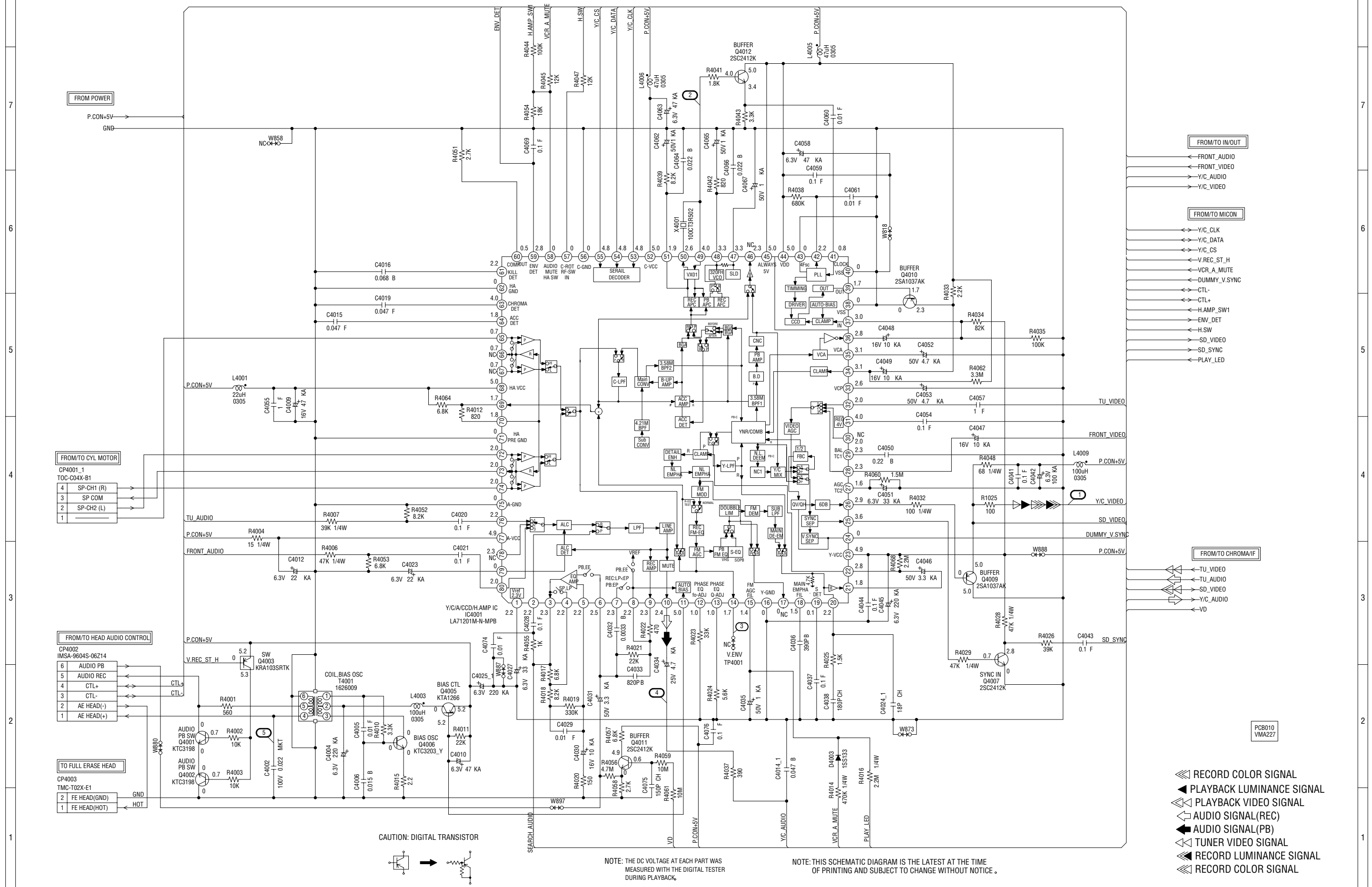
CD852



PRINTED CIRCUIT BOARDS
SYSCON/CRT (CHIP MOUNTED PARTS)
SOLDER SIDE



Y/C/AUDIO/CCD/HEAD AMP SCHEMATIC DIAGRAM (SYSCON PCB)

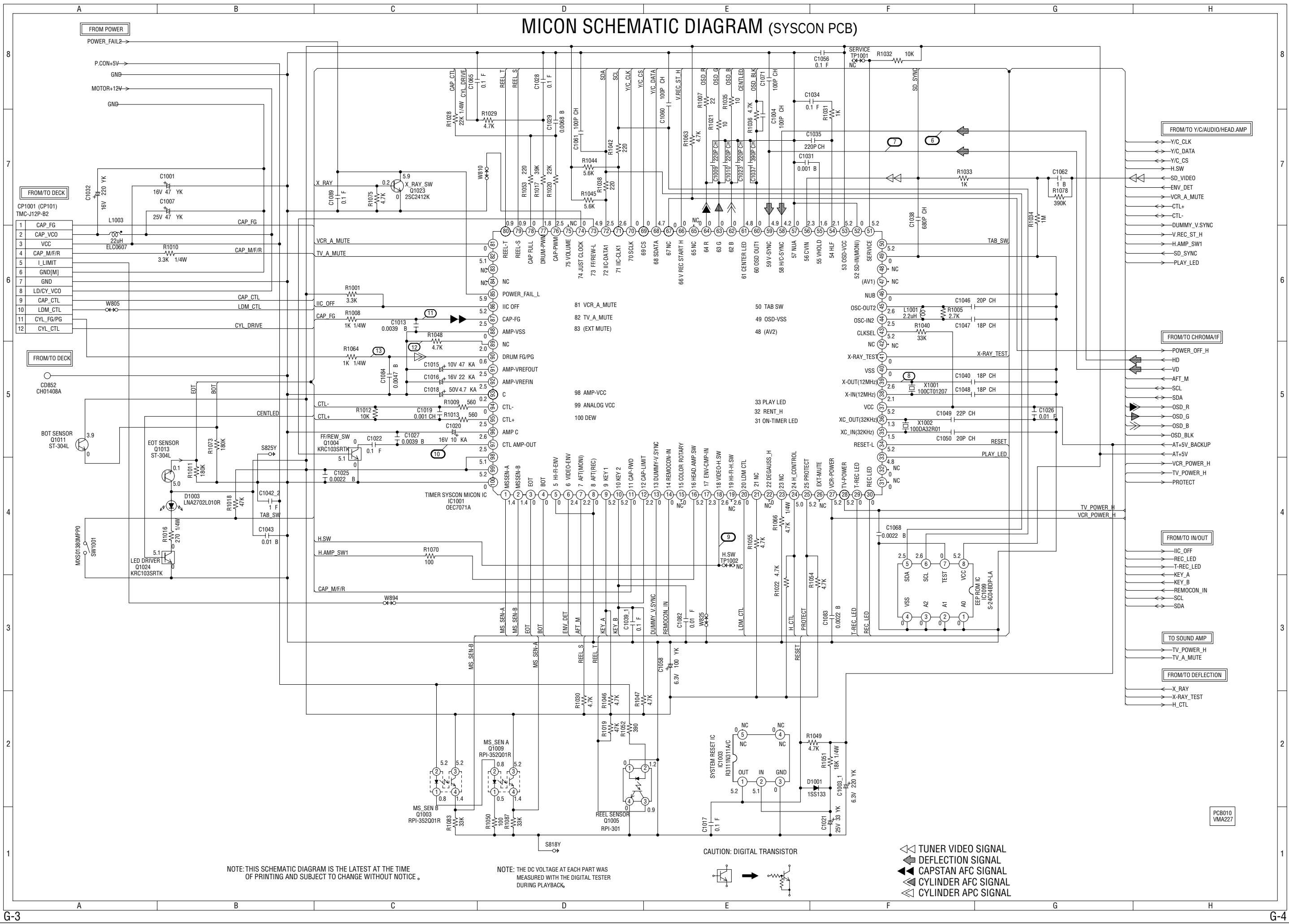


- RECORD COLOR SIGNAL
- PLAYBACK LUMINANCE SIGNAL
- PLAYBACK VIDEO SIGNAL
- AUDIO SIGNAL(REC)
- AUDIO SIGNAL(PB)
- TUNER VIDEO SIGNAL
- RECORD LUMINANCE SIGNAL
- RECORD COLOR SIGNAL

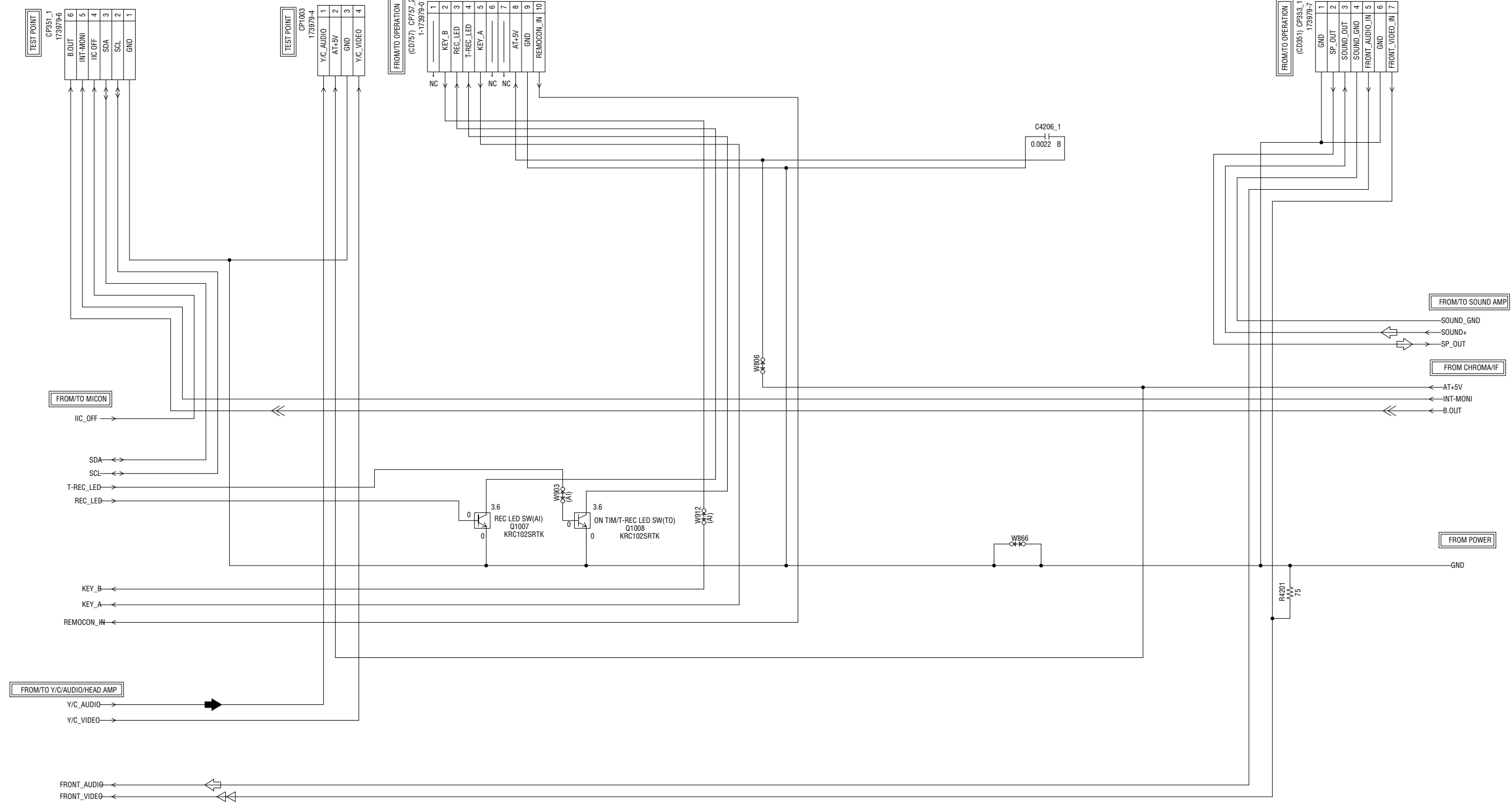
NOTE: THE DC VOLTAGE AT EACH PART WAS
MEASURED WITH THE DIGITAL TESTER
DURING PLAYBACK.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME
OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

MICON SCHEMATIC DIAGRAM (SYSCON PCB)



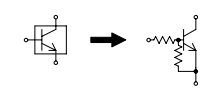
IN/OUT SCHEMATIC DIAGRAM (SYSCON PCB)



NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

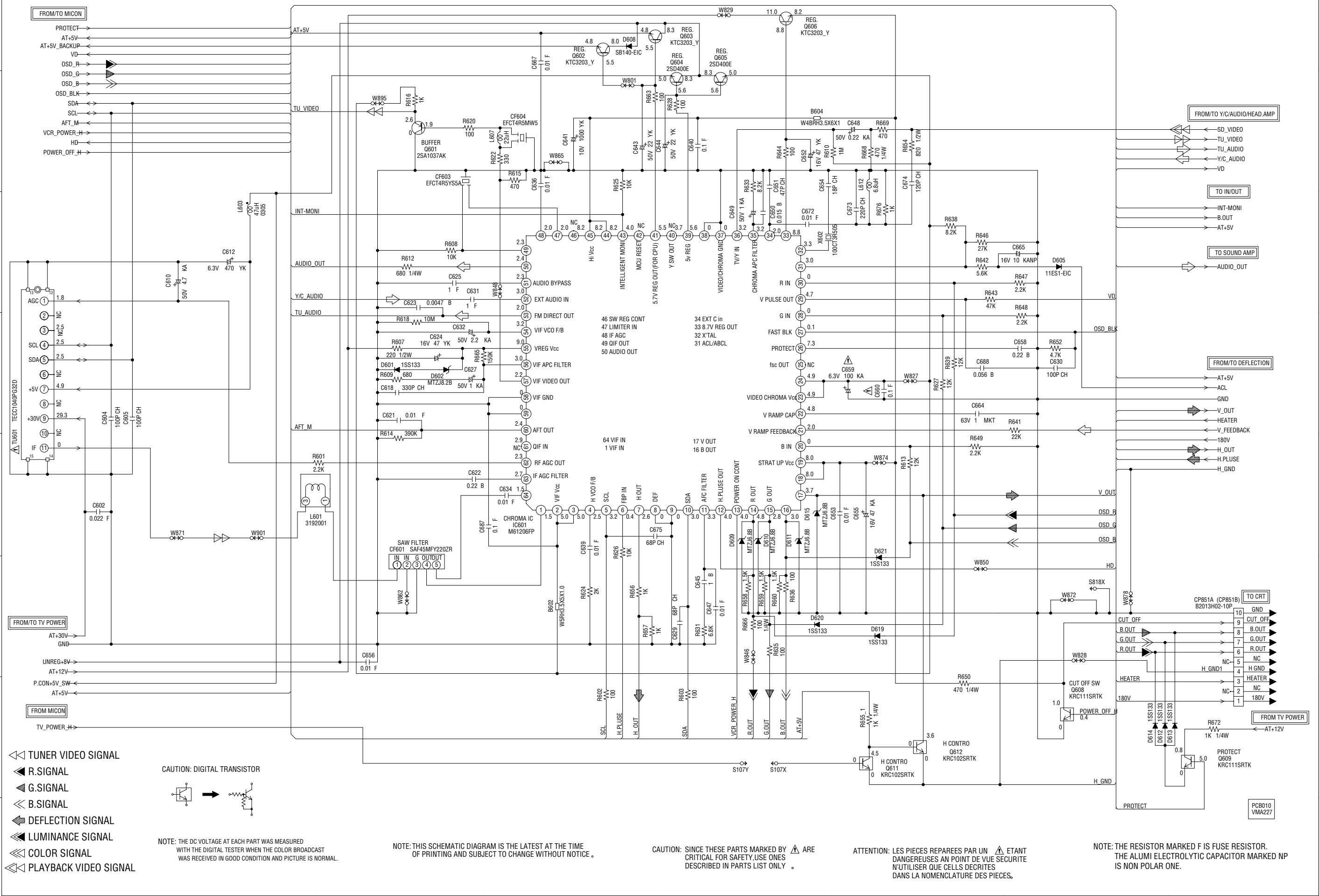
CAUTION: DIGITAL TRANSISTOR



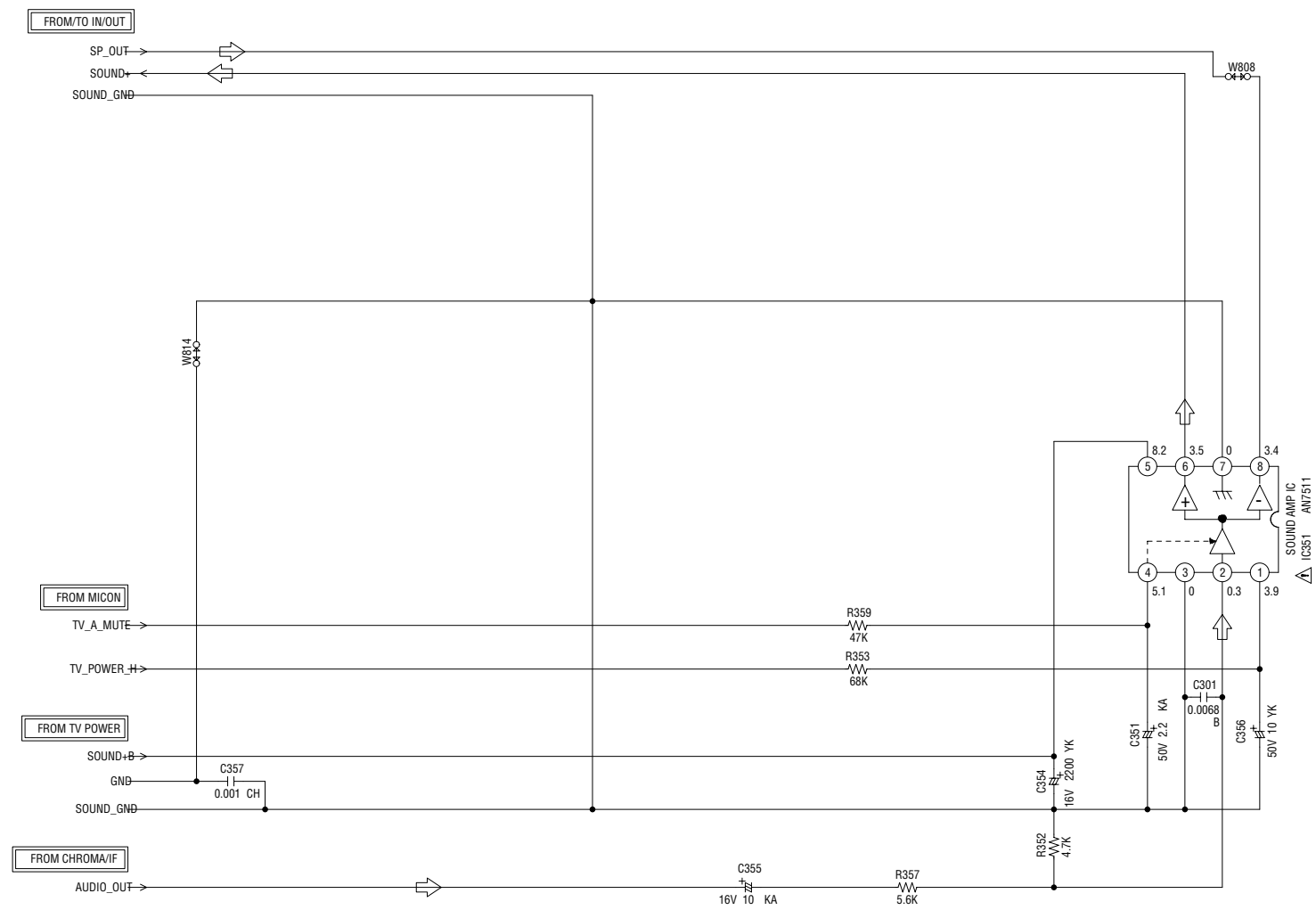
- ◀ B.SIGNAL
- ◀ TUNER VIDEO SIGNAL
- ◀ AUDIO SIGNAL(REC)
- ◀ AUDIO SIGNAL(PB)

PCB010
VMA227

CHROMA/IF SCHEMATIC DIAGRAM (SYSCON PCB)



SOUND AMP SCHEMATIC DIAGRAM
(SYSCON PCB)



NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE .

CAUTION: SINCE THESE PARTS MARKED BY ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED IN PARTS LIST ONLY .

ATTENTION: LES PIECES REPARÉES PAR UN ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES.

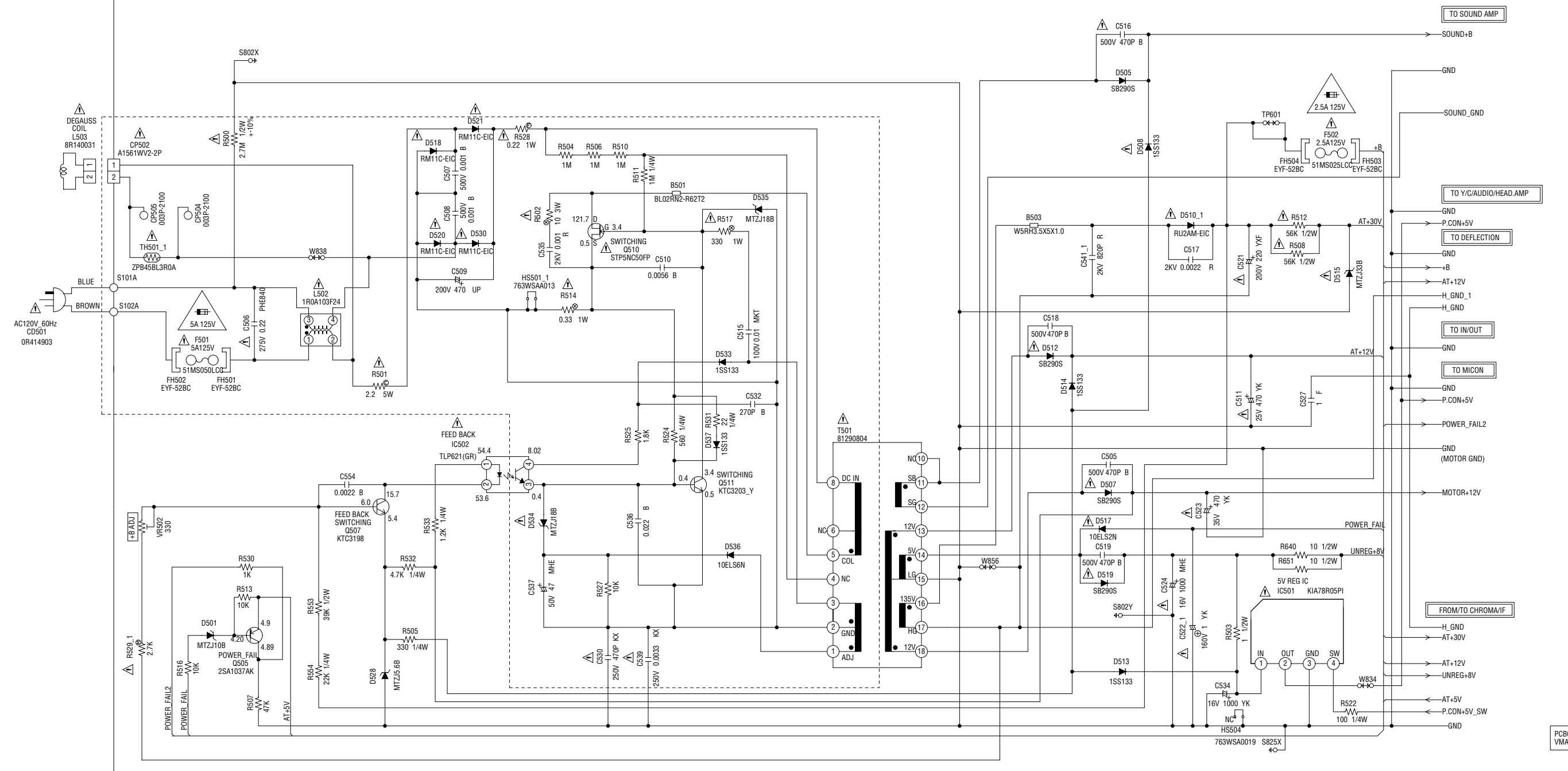
← AUDIO SIGNAL(REC)

PCB010
VMA227

POWER SCHEMATIC DIAGRAM
(SYSCON PCB)

CAUTION: FOR CONTINUED PROTECTION AGAINST FIRE HAZARD,
REPLACE ONLY WITH THE SAME TYPE FUSE 5A 125V
(F501) AND 2.5A 125V (F502)

ATTENTION: POUR UNE PROTECTION CONTINUE LES RISQUES D'INCIEIE
N'UTILISER QUE DES FUSIBLE DE MEME TYPE 5A 125V
(F501) ET 2.5A 125V (F502)



NOTE: THE RESISTOR MARKED F IS FUSE RESISTOR.
THE ALUMI ELECTROLYTIC CAPACITOR MARKED NP
IS NON POLAR ONE.

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED
WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST
WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

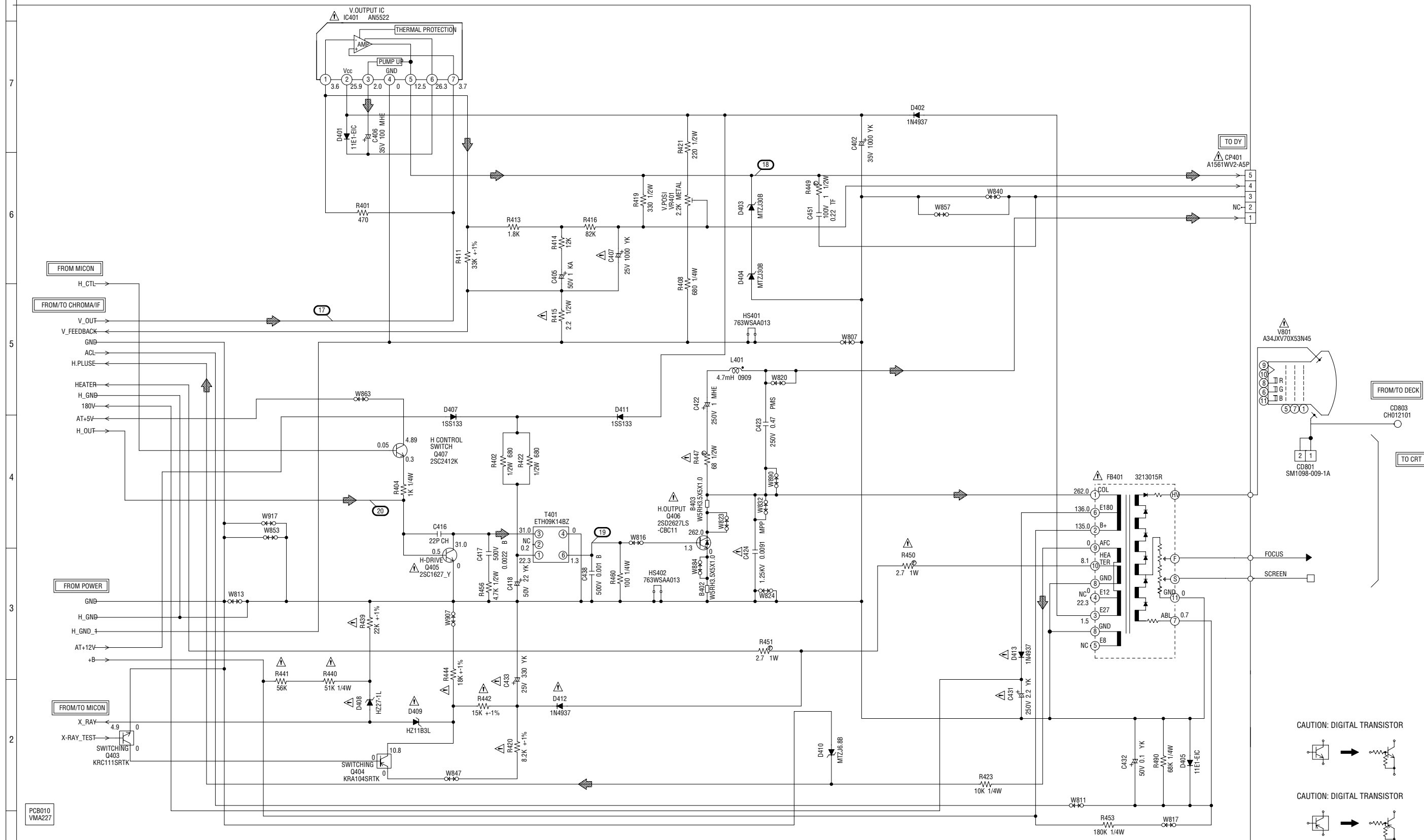
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME
OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

CAUTION: SINCE THESE PARTS MARKED BY ARE
CRITICAL FOR SAFETY, USE ONES
DESCRIBED IN PARTS LIST ONLY.

ATTENTION: LES PIECES REPARÉES PAR UN ÉTANT
DANGEREUSES AU POINT DE VUE SÉCURITÉ
N'UTILISER QUE CELLES DÉCRITES
DANS LA NOMENCLATURE DES PIÈCES.

PCB010
VMA227

DEFLECTION SCHEMATIC DIAGRAM
(SYSCON PCB)



NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

CAUTION: SINCE THESE PARTS MARKED BY ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED IN PARTS LIST ONLY.

ATTENTION: LES PIECES REPARÉES PAR UN ÉTANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DÉCRITES DANS LA NOMENCLATURE DES PIECES.

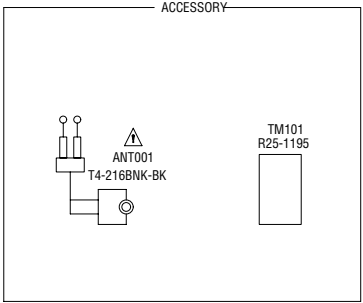
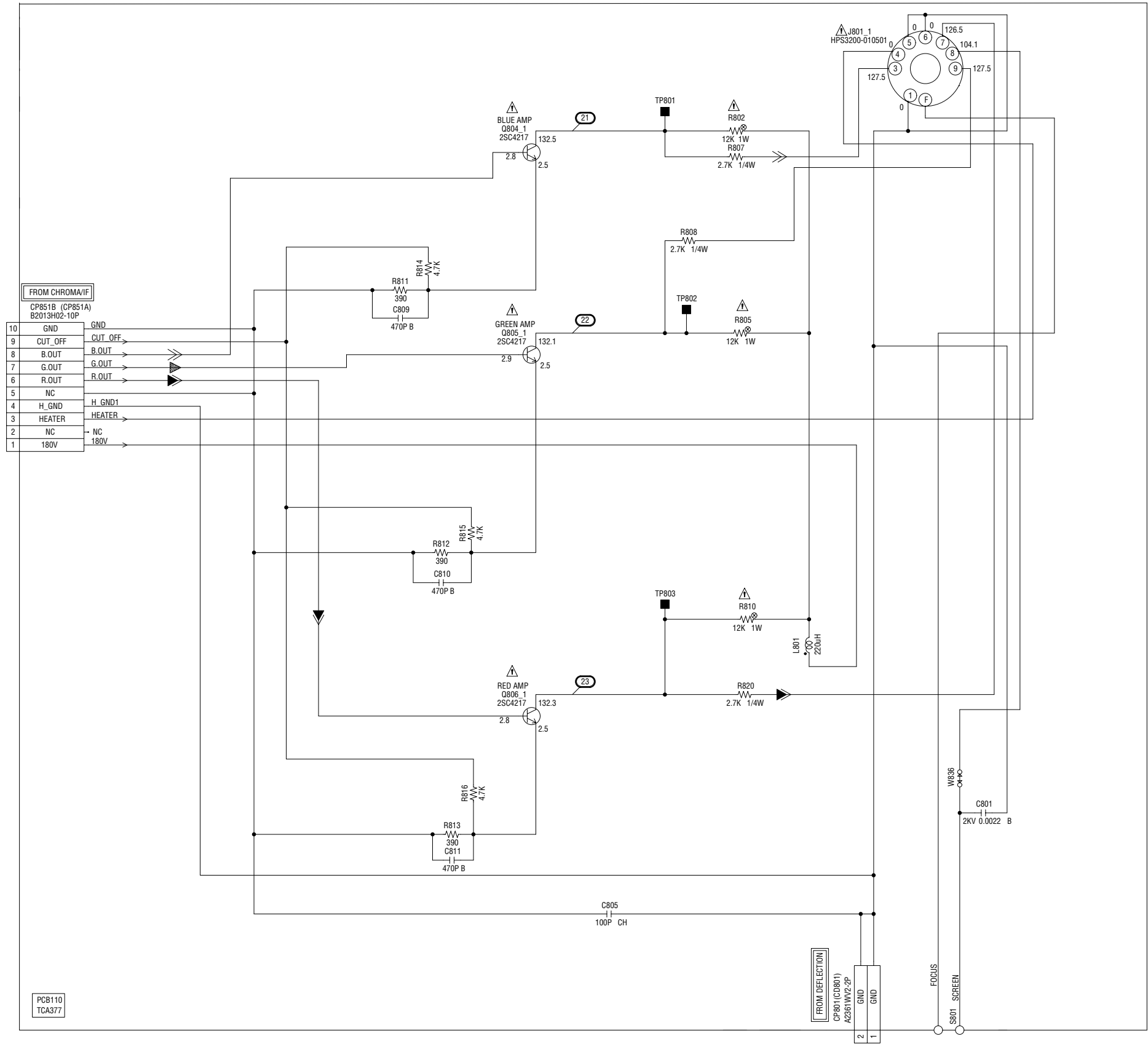
NOTE: THE RESISTOR MARKED F IS FUSE RESISTOR. THE ALUMI ELECTROLYTIC CAPACITOR MARKED NP IS NON POLAR ONE.

CAUTION: DIGITAL TRANSISTOR

CAUTION: DIGITAL TRANSISTOR

DEFLECTION SIGNAL

CRT SCHEMATIC DIAGRAM
(CRT PCB)



NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED
WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST
WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME
OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE .

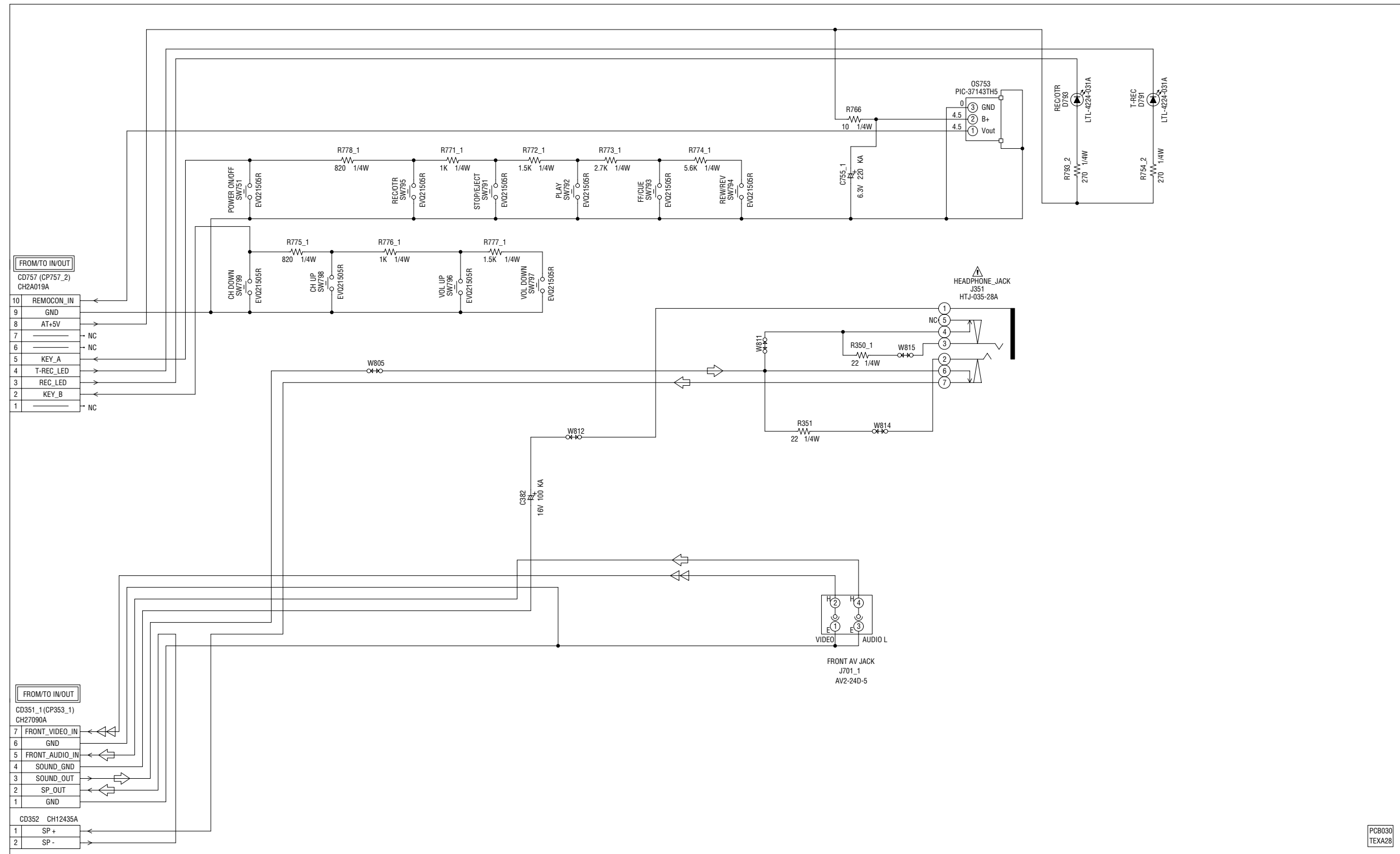
CAUTION: SINCE THESE PARTS MARKED BY ARE
CRITICAL FOR SAFETY, USE ONES
DESCRIBED IN PARTS LIST ONLY .

ATTENTION: LES PIECES REPARÉES PAR UN ÉTANT
DANGEREUSES AN POINT DE VUE SECURITE
N'UTILISER QUE CELLS DECRITES
DANS LA NOMENCLATURE DES PIECES.

◀ R.SIGNAL
◀ G.SIGNAL
◀ B.SIGNAL

OPERATION SCHEMATIC DIAGRAM

(OPERATION PCB)



NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

CAUTION: SINCE THESE PARTS MARKED BY  ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED IN PARTS LIST ONLY.

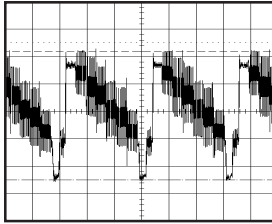
ATTENTION: LES PIECES REPARÉES PAR UN  ÉTANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES.

 TUNER VIDEO SIGNAL
 AUDIO SIGNAL(REC)

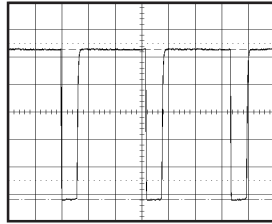
WAVEFORMS

Y/C/AUDIO/CCD/HEAD AMP

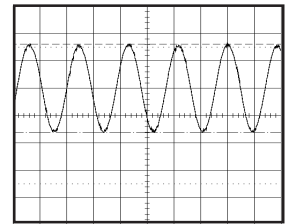
MICON



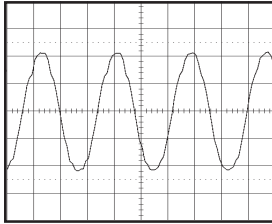
① PB
0.5V 20 μ s/div



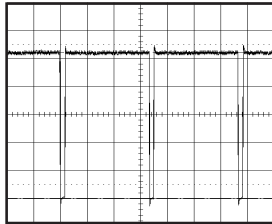
⑥ POWER ON
1.0V 20 μ s/div



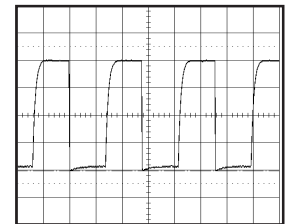
⑪ PB
0.5V 0.5ms/div



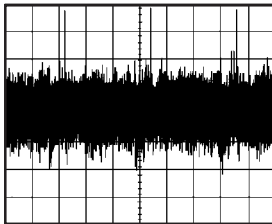
② POWER ON
100mV 0.1 μ s/div



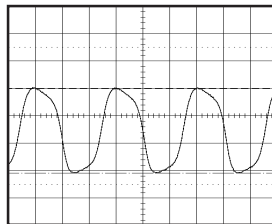
⑦ POWER ON
0.5V 10ms/div



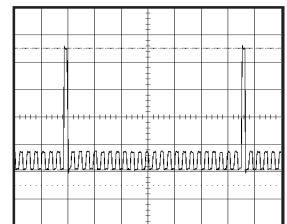
⑫ PB
1.0V 0.5ms/div



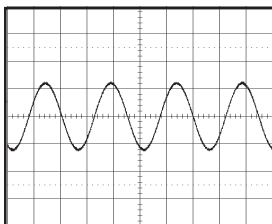
③ PB
10mV 20 μ s/div



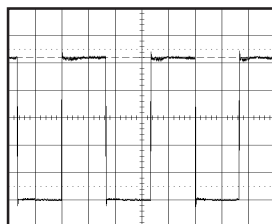
⑧ POWER ON
1.0V 10 μ s/div



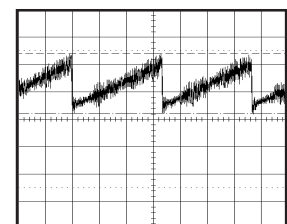
⑬ PB
1.0V 5ms/div



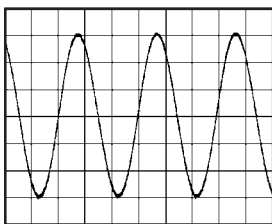
④ PB
0.5V 1ms/div



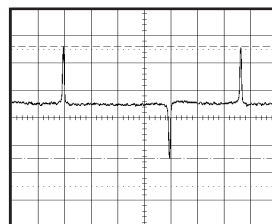
⑨ PB
1.0V 10ms/div



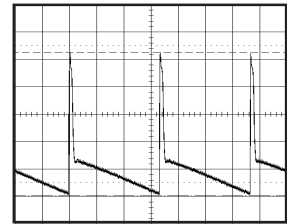
⑰ 0.5V 5ms/div



⑤ REC
10.0V 5 μ s/div



⑩ PB
1.0V 5ms/div

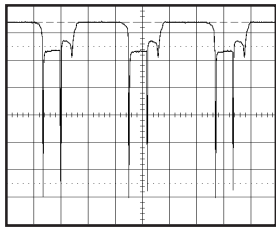


⑱ 10.0V 5ms/div

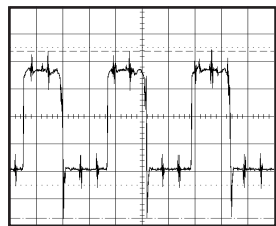
DEFLECTION

NOTE: The following waveforms were measured at the point of the corresponding balloon number in the schematic diagram.

WAVEFORMS

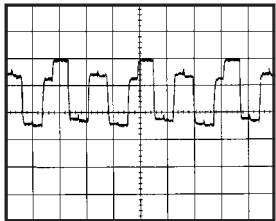


①9 2.0V 20μs/div

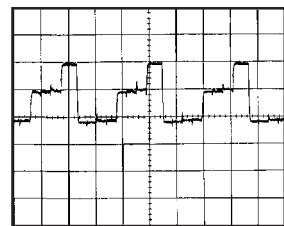


②0 200mV 20μs/div

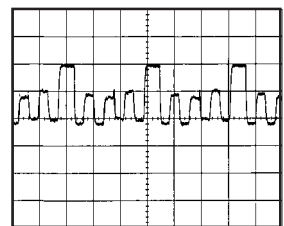
CRT



②1 50.0V 20μs/div



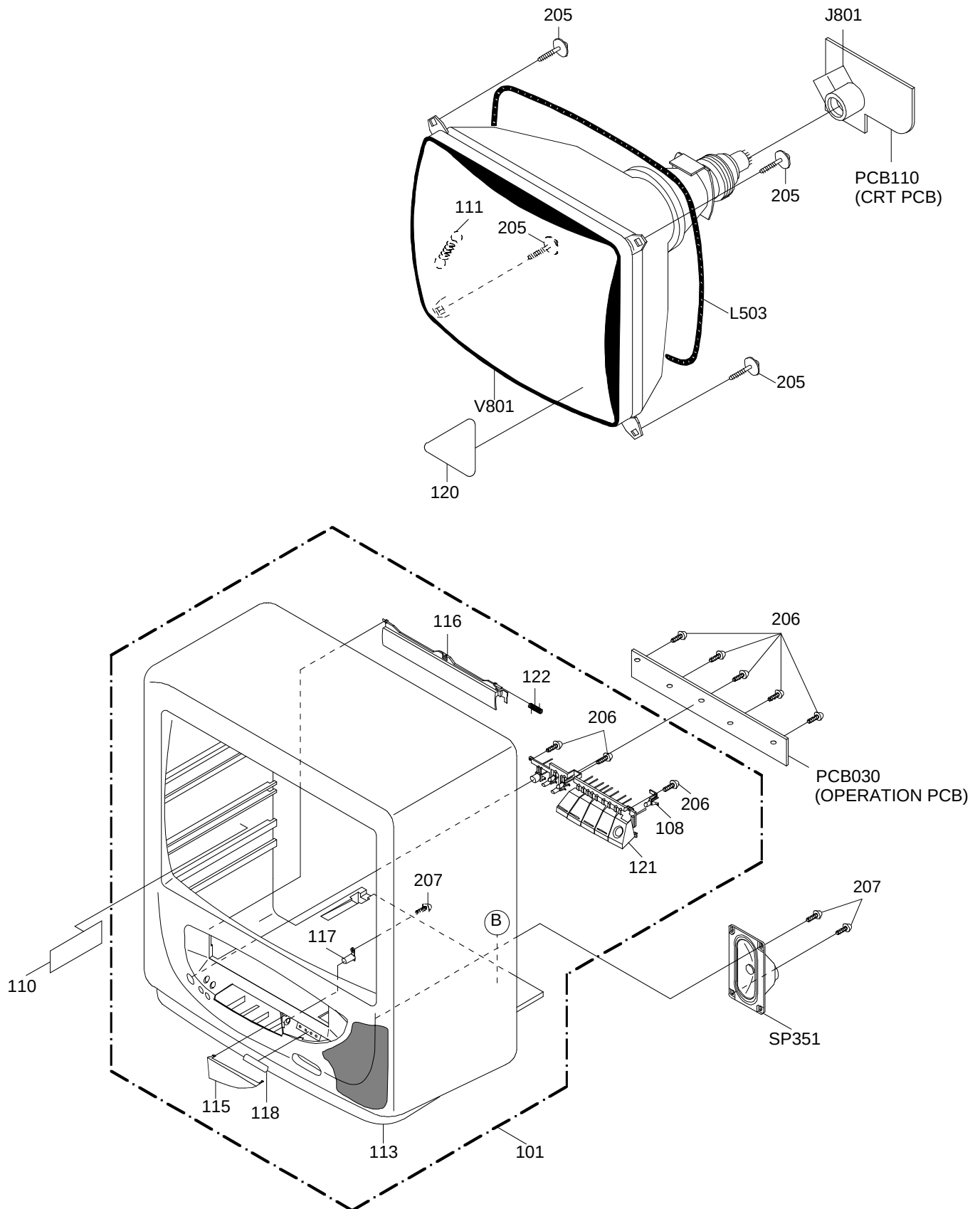
②2 50.0V 20μs/div



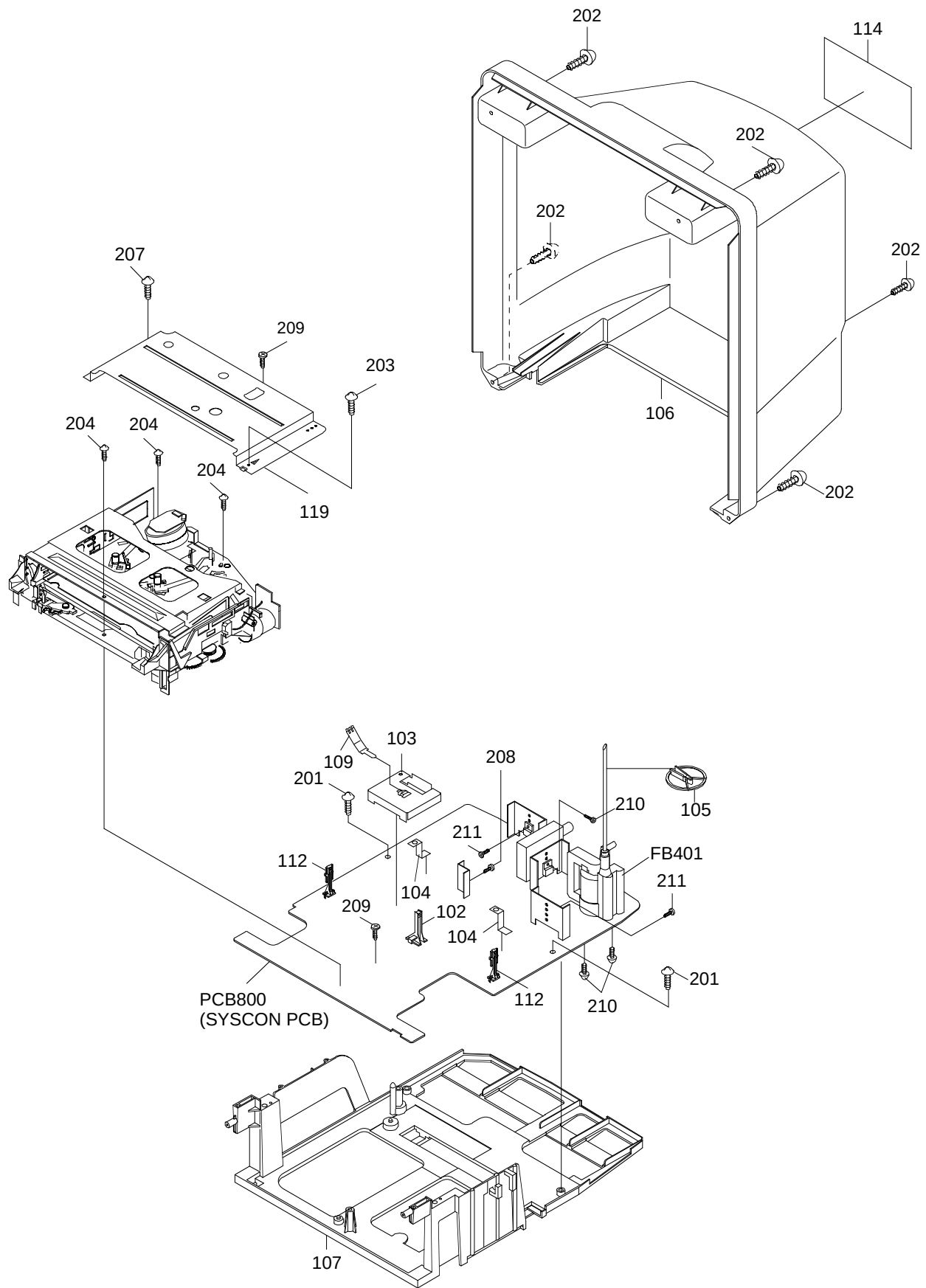
②3 50.0V 20μs/div

NOTE: The following waveforms were measured at the point of the corresponding balloon number in the schematic diagram.

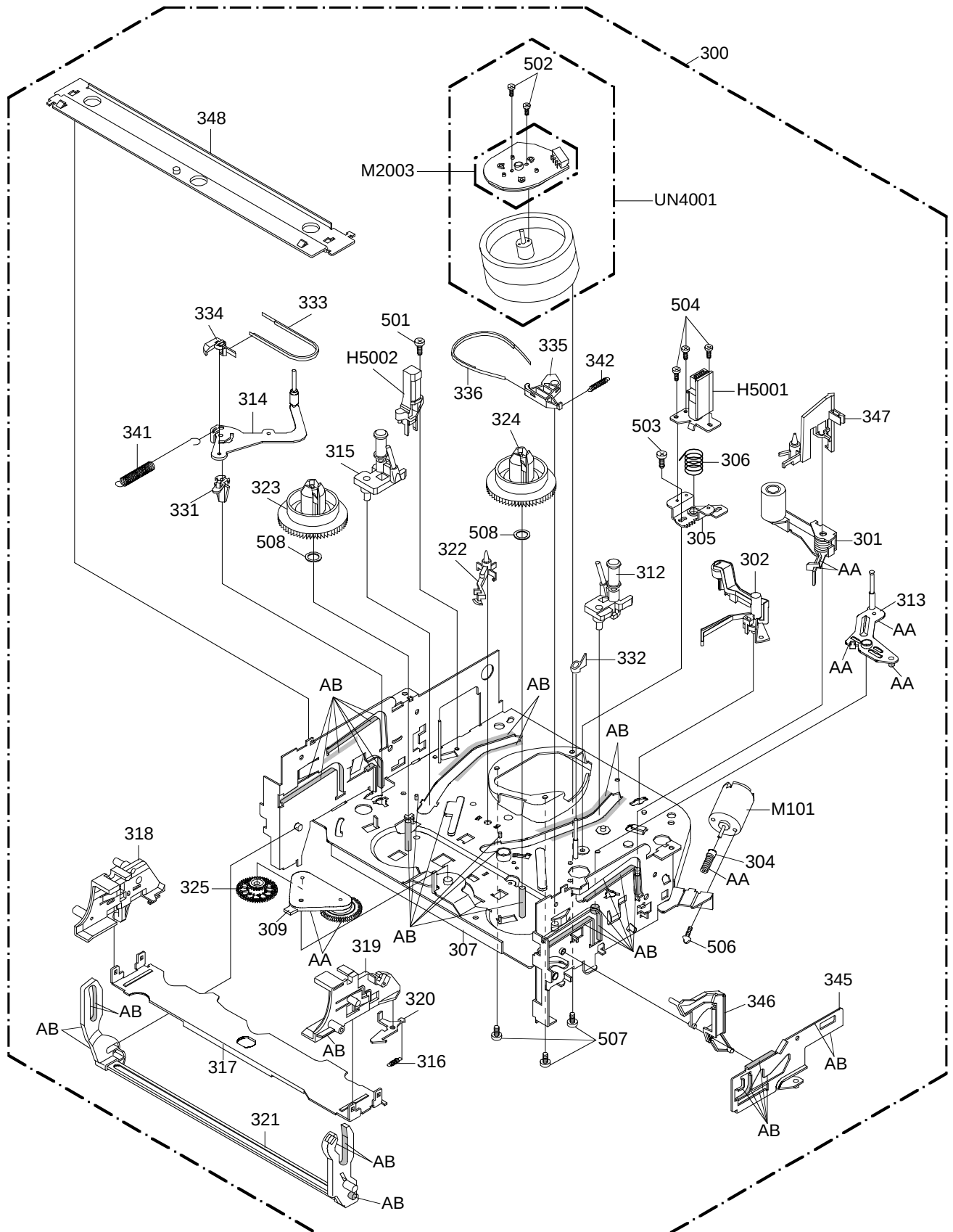
MECHANICAL EXPLODED VIEW



MECHANICAL EXPLODED VIEW



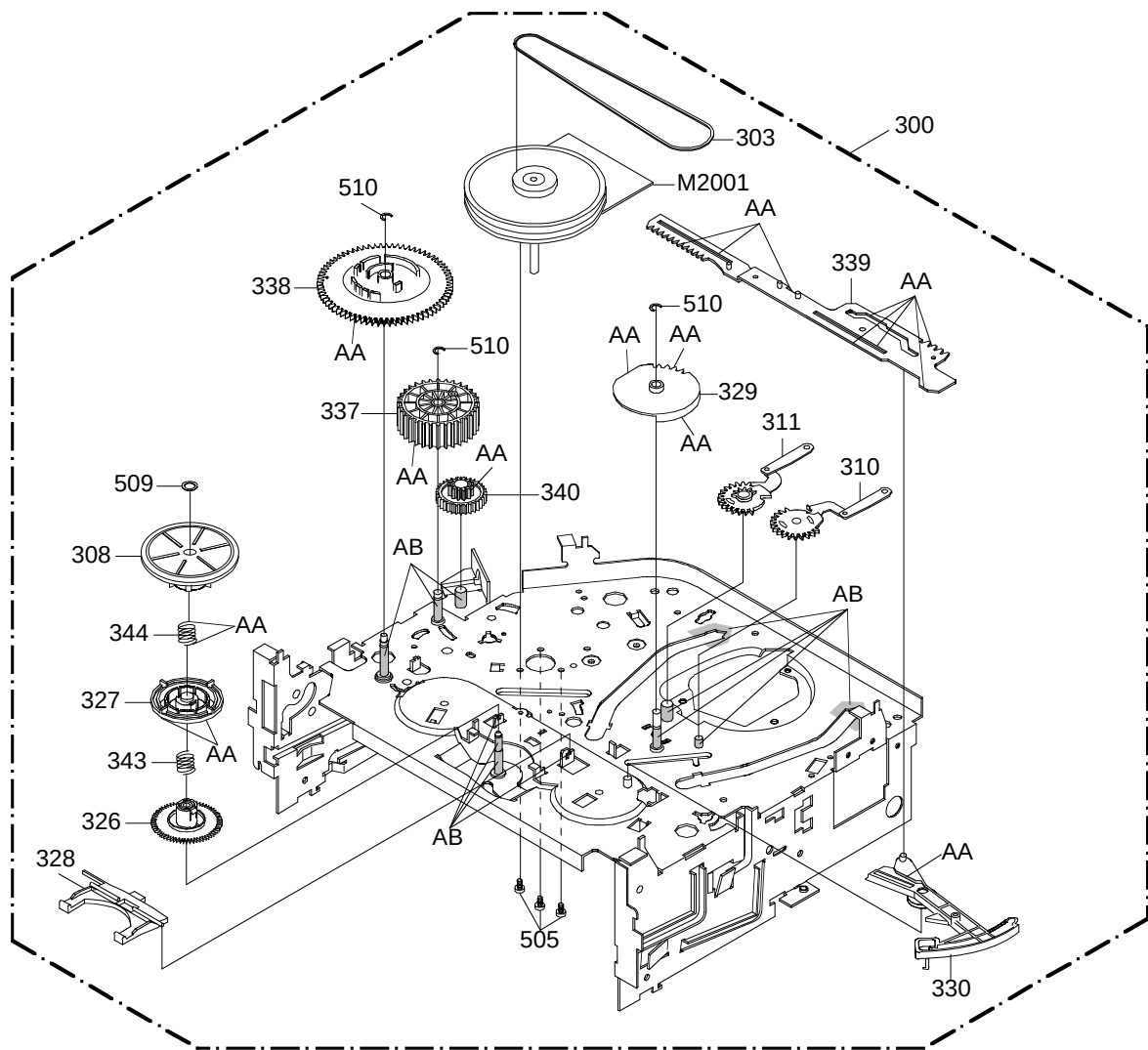
CHASSIS EXPLODED VIEW (TOP VIEW)



CLASS	PART NO.	MARK
GREASE	G-555G	AA
	MG-33	AB

NOTE: Applying positions AA and AB for the grease are displayed for this section.
Check if the correct grease is applied for each position.

CHASSIS EXPLODED VIEW (BOTTOM VIEW)



CLASS	PART NO.	MARK
GREASE	G-555G	AA
	MG-33	AB

NOTE: Applying positions AA and AB for the grease are displayed for this section. Check if the correct grease is applied for each position.

MECHANICAL REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION			
101	A5A304C720	CABINET,FRONT ASS'Y			
102	85OP700037	HOLDER,LED			
103	752WSA0230	SHIELD,CASE HEAD AMP			
104	753WSA0118	PLATE,EARTH-SYSCON			
105	899HV3T000	HOLDER,ANODE WIRE			
106	702WPA0832	CABINET,BACK			
107	761WPA0225	HOLDER,DECK			
108	735WPAA267	BUTTON,REC			
109	753WUAA006	SPRING,EARTH HEAD AMP			
110	726000A023	SHEET,CRT SERVICEMAN			
111	741WUA0019	SPRING,EARTH			
112	85OP700038	HOLDER,END SENSOR			
113	701WPJB487	CABINET,FRONT			
114	722A08A095	SHEET,RATING			
115	711WPA0114	PLATE,FRONT			
116	712WPJB238	FLAP			
117	713WPA0075	GUIDE,REMOCON			
118	7230006830	SHEET,LED			
119	752WSAA040	PLATE,DECK SHIELD			
120	723000A824	FILM,DECORATION			
121	735WPJA514	BUTTON,FRAME			
122	743WKA0032	SPRING,FLAP (COMBO)			
201	8117540B04	SCREW,TAPPING (B0)	TRUSS	4x20	
202	8117540A64	SCREW,TAPPING (B0)	TRUSS	4x16	
203	8107630604	SCREW,TAP TITE (S)	BRAZIER	3x6	
204	8110630A24	SCREW,TAP TITE (P)	BRAZIER	3x12	
205	8121J50B54	SCREW,TAPPING (B0)	GW20	5x28	
206	8110630A04	SCREW,TAP TITE (P)	BRAZIER	3x10	
207	8110630804	SCREW,TAP TITE (P)	BRAZIER	3x8	
208	8109I30804	SCREW,TAP TITE (B)	WH7	3x8	
209	8110330804	SCREW,TAP TITE (P)	FLAT	3x8	
210	8109630802	SCREW,TAP TITE (B)	BRAZIER	3x8	
211	8109I30A04	SCREW,TAP TITE (B)	WH7	3x10	
---	JA5K0200	POLYBAG			
---	J5A30401	INSTRUCTION BOOK			
---	J5780102	WARRANTY SHEET			
---	791WHAA016	LAMIFILM BAG			
---	A5A304A975	INSTRUCTION BOOK KIT			
---	792WHA0271	PACKAGE, TOP			
---	792WHA0272	PACKAGE,BOTTOM			
---	793WCDB088	GIFT BOX			

CHASSIS REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION
300	A5A305A420K	DECK ASS'Y A5A305A420K	501	8107226804	SCREW,TAP TITE(S) BIND 2.6x8
301	85OA400227	PINCH ROLLER BLOCK	502	810A123504	SEMS A M2.3x5.0
302	85OA500026	AHC ASS'Y	503	8107226404	SCREW,TAP TITE(S) BIND 2.6x4
303	85OP200290	BELT,CAPSTAN (S)	504	8102120604	SCREW,PAN M2x6
304	85OP600581	WORM	505	8109126604	SCREW,TAP TITE(B) PAN 2.6x6
305	85OP500083	BASE,AC HEAD	506	810A130404	SCREW/WASHER(A) M3x4
306	85OP800324	SPRING,AC HEAD	507	810A126504	SCREW/WASHER(A) M2.6x5
307	85OA000459	MAIN CHASSIS ASS'Y	508	82Q264713N	POLYSLIDER WASHER 2.6x4.7xT0.13
308	85OA200089	CLUTCH ASS'Y	509	82P184505N	POLYSLIDER WASHER(CUT) 1.8x4.5xT0.5
309	85OA200090	ARM IDLER ASS'Y	510	83ETW30000	E-RING 3.0
310	85OA300065	LOADING ARM S UNIT	CD1501	122H071603	CORD JUMPER SMCD-7X151
311	85OA300066	LOADING ARM T UNIT	CD1502	122Y021902	CORD JUMPER 2Y021902
312	85OA400223	INCLINED BASE T UNIT 3S	H5001	1523D91034	HEAD (AUDIO CONTROL) HVMXA1072A
313	85OA400226	P5 ARM ASS'Y	H5002	1543D02013	HEAD (FULL ERASE) HVFHP0032A
314	85OA400233	TENSION ARM ASS'Y (WT)	△ M101	1596P98001	MOTOR (LOADING) MXN13FB12K3
315	85OA400231	INCLINED BASE S UNIT	△ M2001	1510S98036	CAPSTAN DD UNIT F2QVB08
316	85OP800358	SPRING,LOCKER	△ M2003	1589S11014	MICRO MOTOR I2OAL03
317	85OP900736	CASS,HOLDER	△ UN4001	A5A305A500	CYLINDER UNIT ASS'Y A5A305A500
318	85OP900748	CASS,SIDE L			
319	85OP900749	CASS,SIDE R			
320	85OP900739	LOCKER,R			
321	85OA900228	LINK UNIT			
322	85OP000496	POST,CASS GUIDE			
323	85OP200291	REEL,S (S)			
324	85OP200292	REEL,T (S)			
325	85OP200308	GEAR,IDLER			
326	85OP200311	GEAR,CLUTCH			
327	85OP200312	GEAR,COUPLING			
328	85OP200313	LEVER,CLUTCH			
329	85OP300194	GEAR,MAIN LOADING			
330	85OP400490	LEVER,TENSION			
331	85OP400492	HOLDER,TENSION			
332	85OP400520	CAP.P4			
333	85OP400532	BAND,TENSION			
334	85OP400533	CONNECT,TENSION			
335	85OP600573	ARM,BRAKE T			
336	85OP600574	BAND,BRAKE T			
337	85OP600577	CAM,PINCH ROLLER			
338	85OP600578	CAM,MAIN			
339	85OP600579	ROD,MAIN			
340	85OP600582	GEAR,JOINT			
341	85OP800322	SPRING,TENSION			
342	85OP800350	SPRING,BRAKE T			
343	85OP800355	SPRING,COUPLING			
344	85OP800356	SPRING,RING			
345	85OP900743	LEVER,LINK			
346	85OP900744	LEVER,FLAP			
347	85OP900745	CASS,OPENER			
348	85OP900746	BRACKET,TOP 3V			

ELECTRICAL REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION		REF. NO.	PART NO.	DESCRIPTION	
RESISTORS				DIODES			
△ R415	R002T22R2J	RC	2.2 OHM 1/2W	D536	D28TELS6N6	DIODE RECTIFIER	10ELS6N-TA1B2
△ R420	R801R7822F	RC	8.2K OHM 1/10W	D537	D1VT001330	DIODE,SILICON	1SS133T-77
△ R439	R801R7223F	RC	22K OHM 1/10W	D601	D1VT001330	DIODE,SILICON	1SS133T-77
△ R442	R801R7153F	RC	15K OHM 1/10W	D602	D97U08R21B	DIODE,ZENER	MTZJ8.2B T-77
△ R444	R801R7183F	RC	18K OHM 1/10W	D605	D2WT11ES10	DIODE SILICON	11ES1-EIC
△ R447	R65582680J	R,FUSE	68 OHM 1/2W	D608	D2WXS81400	DIODE SCHOTTKY	SB140-EIC
R449	R63502010J	R,FUSE	1 OHM 1/2W	D609	D97U06R81B	DIODE,ZENER	MTZJ6.8B T-77
	R655U2010J	R,FUSE	1 OHM 1/2W	D610	D97U06R81B	DIODE,ZENER	MTZJ6.8B T-77
△ R450	R655812R7J	R,FUSE	2.7 OHM 1W	D611	D97U06R81B	DIODE,ZENER	MTZJ6.8B T-77
R451	R655812R7J	R,FUSE	2.7 OHM 1W	D612	D1VT001330	DIODE,SILICON	1SS133T-77
△ R500	R0G3K2275K	RC	2.7M OHM 1/2W	D613	D1VT001330	DIODE,SILICON	1SS133T-77
△ R501	R5Y2CD2R2J	R,CEMENT	2.2 OHM 5W	D614	D1VT001330	DIODE,SILICON	1SS133T-77
△ R502	R3X28B100J	R,METAL OXIDE	10 OHM 3W	D615	D97U06R81B	DIODE,ZENER	MTZJ6.8B T-77
△ R510	R903N8105J	RC	1M OHM 1/8W	D619	D1VT001330	DIODE,SILICON	1SS133T-77
△ R512	R002T2563J	RC	56K OHM 1/2W	D620	D1VT001330	DIODE,SILICON	1SS133T-77
R514	R3X181R33J	R,METAL OXIDE	0.33 OHM 1W	D621	D1VT001330	DIODE,SILICON	1SS133T-77
△ R517	R3X181331J	R,METAL OXIDE	330 OHM 1W	D791	0021E2Q150	LED	LTL-4224-031A
△ R528	R63581R22J	R,FUSE	0.22 OHM 1W	D793	0021E2Q150	LED	LTL-4224-031A
△ R802	R3X181123J	R,METAL OXIDE	12K OHM 1W	D1001	D1VT001330	DIODE,SILICON	1SS133T-77
△ R805	R3X181123J	R,METAL OXIDE	12K OHM 1W	D1003	0010100320	INFRARED LED	LNA2702L010R
△ R810	R3X181123J	R,METAL OXIDE	12K OHM 1W	D4003	D1VT001330	DIODE,SILICON	1SS133T-77
CAPACITORS				ICS			
C354	E02L02222M	CE	2200 UF 16V	△ IC351	I01DP75110	IC	AN7511
△ C402	E02L04102M	CE	1000 UF 35V	△ IC401	I01TD55220	IC	AN5522
△ C407	E02L03102M	CE	1000 UF 25V	IC501	I1KA98R050	IC	KIA78R05PI
C423	P4J7F3474J	CMPP	0.47 UF 250V PMS	△ IC502	0002500450	PHOTO COUPLER	TLP621(GR)
△ C424	P4N8FJ912H	CMPP	0.0091UF 1.25KV	IC601	I06FC61206	IC	M61206FP
△ C431	E02LTD2R2M	CE	2.2 UF 250V	IC1001	I56F57071A	IC	OEC7071A
△ C433	E02LT3331M	CE	330 UF 25V	△ IC1003	IC7J0311A0	IC	R3111N311A/C-TR
C451	P61101224J	CMPL	0.22 UF 100V TF	IC1099	A5A304C015	IC	S-24C04BDP-LA
	P611T1224J	CMPL	0.22 UF 100V TF	IC4001	I03F301MN0	IC	LA71201M-N-MPB
△ C506	P2472B224M	CMP	0.22UF 275V PHE840	TRANSISTORS			
△ C507	C0JTB0513K	CC	0.001 UF 500V B	Q403	TNAAJ05003	COMPOUND TRANSISTOR	KRC111SRTK
C509	E51CGC471M	CE	470 UF 200V	Q404	TPAAD05003	COMPOUND TRANSISTOR	KRA104SRTK
△ C511	E02LT3471M	CE	470 UF 25V	△ Q405	TC5T01627Y	TRANSISTOR SILICON	2SC1627_Y(TPE2)
C517	C03L0R7H3K	CC	0.0022UF 2KV R	△ Q406	TD30026270	TRANSISTOR SILICON	2SD2627LS-CBC11
△ C521	E62NFC221M	CE	220 UF 200V	Q407	T8YJ2412K0	TRANSISTOR SILICON	2SC2412KT146 R,S
△ C530	CB3930MQ2K	CC	470 PF 250V	Q505	T6YJ1037K0	TRANSISTOR,SILICON	2SA1037AKT146R,S
C535	C03L0R713K	CC	0.001 UF 2KV R	Q507	TCATC31980	TRANSISTOR,SILICON	KTC3198-AT(Y,GR)
△ C539	CB3930ML3M	CC	0.0033UF 250V	△ Q510	TJXG5NC500	FET	STP5NC50FP
C541	C03L0R7W2K	CC	820 PF 2KV R	△ Q511	TCAT032034	TRANSISTOR, SILICON	KTC3203_Y-AT
C801	C0PWB07H3K	CC	0.0022UF 2KV B	Q601	T6YJ1037K0	TRANSISTOR,SILICON	2SA1037AKT146R,S
DIODES				Q602	TCAT032034	TRANSISTOR, SILICON	KTC3203_Y-AT
D401	D2WT011E10	DIODE SILICON	11E1-EIC	Q603	TCAT032034	TRANSISTOR, SILICON	KTC3203_Y-AT
△ D402	D2WXN49370	DIODE SILICON	1N4937	Q604	TDWT00400E	TRANSISTOR SILICON	2SD400E
D403	D97U03001B	DIODE,ZENER	MTZJ30B T-77	Q605	TDWT00400E	TRANSISTOR SILICON	2SD400E
	D97U03301C	DIODE,ZENER	MTZJ33C T-77	Q606	TCAT032034	TRANSISTOR, SILICON	KTC3203_Y-AT
D404	D97U03001B	DIODE,ZENER	MTZJ30B T-77	Q608	TNAAJ05003	COMPOUND TRANSISTOR	KRC111SRTK
	D97U03301C	DIODE,ZENER	MTZJ33C T-77	Q609	TNAAJ05003	COMPOUND TRANSISTOR	KRC111SRTK
D405	D2WT011E10	DIODE SILICON	11E1-EIC	Q611	TNAAB05003	COMPOUND TRANSISTOR	KRC102SRTK
D407	D1VT001330	DIODE,SILICON	1SS133T-77	Q612	TNAAB05003	COMPOUND TRANSISTOR	KRC102SRTK
△ D408	D94TA27011	DIODE ZENER	HZ27-1L TD	△ Q804	TC3F042170	TRANSISTOR,SILICON	2SC4217(D,E)-RAC
△ D409	D94TA11B13	DIODE ZENER	HZ11B3L TD	△ Q805	TC3F042170	TRANSISTOR,SILICON	2SC4217(D,E)-RAC
D410	D97U06R81B	DIODE,ZENER	MTZJ6.8B T-77	△ Q806	TC3F042170	TRANSISTOR,SILICON	2SC4217(D,E)-RAC
D411	D1VT001330	DIODE,SILICON	1SS133T-77	Q1003	0002700530	PHOTO COUPLER	RPI-352Q01R
△ D412	D2WXN49370	DIODE SILICON	1N4937	Q1004	TNAAC05002	COMPOUND TRANSISTOR	KRC103SRTK
△ D413	D2WXN49370	DIODE SILICON	1N4937	△ Q1005	0002700590	PHOTO COUPLER	RPI-301
△ D501	D97U01001B	DIODE,ZENER	MTZJ10B T-77	Q1007	TNAAB05003	COMPOUND TRANSISTOR	KRC102SRTK
△ D505	D2WXB290S0	DIODE SILICON	SB290S	Q1008	TNAAB05003	COMPOUND TRANSISTOR	KRC102SRTK
D507	D2WXB290S0	DIODE SILICON	SB290S	Q1009	0002700530	PHOTO COUPLER	RPI-352Q01R
D508	D1VT001330	DIODE,SILICON	1SS133T-77	Q1011	0000M00390	PHOTO TRANSISTOR	ST-304L
△ D510	D2WXRU2AM0	DIODE SILICON	RU2AM-EIC	Q1013	0000M00390	PHOTO TRANSISTOR	ST-304L
△ D512	D2WXB290S0	DIODE SILICON	SB290S	Q1023	T8YJ2412K0	TRANSISTOR SILICON	2SC2412KT146 R,S
D513	D1VT001330	DIODE,SILICON	1SS133T-77	Q1024	TNAAC05002	COMPOUND TRANSISTOR	KRC103SRTK
D514	D1VT001330	DIODE,SILICON	1SS133T-77	Q4001	TCATC31980	TRANSISTOR,SILICON	KTC3198-AT(Y,GR)
△ D515	D97U03301B	DIODE,ZENER	MTZJ33B T-77	Q4002	TCATC31980	TRANSISTOR,SILICON	KTC3198-AT(Y,GR)
	D97X03301B	DIODE,ZENER	MTZJ-33B-T72	Q4003	TPAAC05002	COMPOUND TRANSISTOR	KRA103SRTK
△ D517	D28TELS2N2	DIODE RECTIFER	10ELS2N-TA1B2	Q4005	TAATA12660	TRANSISTOR,SILICON	KTA1266-AT(Y,GR)
D518	D2WTRM11C0	DIODE SILICON	RM11C-EIC	Q4006	TCAT032034	TRANSISTOR, SILICON	KTC3203_Y-AT
△ D519	D2WXB290S0	DIODE SILICON	SB290S	Q4007	T8YJ2412K0	TRANSISTOR SILICON	2SC2412KT146 R,S
D520	D2WTRM11C0	DIODE SILICON	RM11C-EIC	Q4009	T6YJ1037K0	TRANSISTOR,SILICON	2SA1037AKT146R,S
D521	D2WTRM11C0	DIODE SILICON	RM11C-EIC	Q4010	T6YJ1037K0	TRANSISTOR,SILICON	2SA1037AKT146R,S
D528	D97U05R61B	DIODE,ZENER	MTZJ5.6B T-77	Q4011	T8YJ2412K0	TRANSISTOR SILICON	2SC2412KT146 R,S
D530	D2WTRM11C0	DIODE SILICON	RM11C-EIC	Q4012	T8YJ2412K0	TRANSISTOR SILICON	2SC2412KT146 R,S
D533	D1VT001330	DIODE,SILICON	1SS133T-77	COILS & TRANSFORMERS			
△ D534	D97U01801B	DIODE,ZENER	MTZJ18B T-77	L401	021679472K	COIL	4.7 MH
△ D535	D97U01801B	DIODE,ZENER	MTZJ18B T-77	△ L502	029T000092	COIL,LINE FILTER	1R0A103F24

ELECTRICAL REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION		REF. NO.	PART NO.	DESCRIPTION	
COILS & TRANSFORMERS				MISCELLANEOUS			
▲ L503	028R140031	COIL,DEGAUSS	8R140031	▲ FB401	043213015R	TRANSFORMER,FLYBACK	3213015R
L601	0331920018	COIL	3192001	FH501	06710T0006	HOLDER,FUSE	EYF-52BC
L603	02167F470J	COIL	47 UH	FH502	06710T0006	HOLDER,FUSE	EYF-52BC
L607	021LA6220K	COIL	22 UH	FH503	06710T0006	HOLDER,FUSE	EYF-52BC
L612	021LA66R8K	COIL	6.8 UH	FH504	06710T0006	HOLDER,FUSE	EYF-52BC
L801	021673221K	COIL	220 UH	OS753	077Q037002	REMOTE RECEIVER	PIC-37143TH5
L1001	021LA62R2K	COIL	2.2 UH	▲ SP351	070W535002	SPEAKER	NF-16D27W
L1003	02167H220K	COIL	22 UH	▲ TH501	DF5EL3R0A0	DEGAUSS ELEMENT	ZPB45BL3R0A
L4001	02167F220J	COIL	22 UH	TM101	076R0CG010	TRANSMITTER	R25-1195 or
L4003	02167F101J	COIL	100 UH		076N0CG010	TRANSMITTER	RC-CG010
L4005	02167F470J	COIL	47 UH	▲ TU601	0145K00055	TUNER,VHF-UHF	TECC1040PG32D
L4006	02167F470J	COIL	47 UH	▲ V801	098Y1404B9	CRT W/DY	A34JXV70X53N45
L4009	02167F101J	COIL	100 UH	X602	100CT3R505	CRYSTAL HC-49/C	3.579545MHz
T401	045009003J	TRANS,HORIZONTAL DRIVE	ETH09K14BZ	X1001	100CT01207	CRYSTAL HC-49/U-S	12MHz
▲ T501	0481290804	TRANSFORMER,SWITCHING	81290804	X1002	100DA32R01	CRYSTAL DT-26	32.768KHz
T4001	031626009R	COIL,BIAS OSC	1626009	X4001	100CT3R502	CRYSTAL HC-49/U	3.579545MHz
JACKS							
▲ J351	060G131014	RCA JACK	HTJ-035-28A	RESISTOR			
J701	060Q401075	RCA JACK	AV2-24D-5	RC..... CARBON RESISTOR			
▲ J801	066X120014	SOCKET,CRT	HPS3200-010501				
SWITCHES				CAPACITORS			
SW751	0504101T34	SWITCH,TACT	EVQ21505R	CC.....	CERAMIC CAPACITOR		
SW791	0504101T34	SWITCH,TACT	EVQ21505R	CE.....	ALUMI ELECTROLYTIC CAPACITOR		
SW792	0504101T34	SWITCH,TACT	EVQ21505R	CP.....	POLYESTER CAPACITOR		
SW793	0504101T34	SWITCH,TACT	EVQ21505R	CPP.....	POLYPROPYLENE CAPACITOR		
SW794	0504101T34	SWITCH,TACT	EVQ21505R	CPL.....	PLASTIC CAPACITOR		
SW795	0504101T34	SWITCH,TACT	EVQ21505R	CMP.....	METAL POLYESTER CAPACITOR		
SW796	0504101T34	SWITCH,TACT	EVQ21505R	CMPL.....	METAL PLASTIC CAPACITOR		
SW797	0504101T34	SWITCH,TACT	EVQ21505R	CMPP.....	METAL POLYPROPYLENE CAPACITOR		
SW798	0504101T34	SWITCH,TACT	EVQ21505R				
SW799	0504101T34	SWITCH,TACT	EVQ21505R				
SW1001	0508A11002	SWITCH(LEAF)	MXS01380MPP0				
VARIABLE RESISTORS							
VR401	V1263H3BT7	VOLUME,SEMI FIXED	RH0683CJ3R				
VR502	V1163L2BTC	VOLUME,SEMI FIXED	EVNCYAA03BY2				
P.C.BOARD ASSEMBLIES							
PCB010	A5A304C010	PCB ASS'Y	VMA227A				
PCB030	A5A304C030	PCB ASS'Y	TEXA28A				
PCB110	A5A304C110	PCB ASS'Y	TCA377A				
MISCELLANEOUS							
ANT001	125C108027	ANTENNA ROD	T4-216BNK-BK				
B402	024HT03553	CORE,BEADS	W5RH3.5X5X1.0				
B403	024HT03553	CORE,BEADS	W5RH3.5X5X1.0				
B501	024A8407C3	CORE,BEADS	BL02RN2-R62T2				
B503	024HT03553	CORE,BEADS	W5RH3.5X5X1.0				
B602	024HT03553	CORE,BEADS	W5RH3.5X5X1.0				
B604	024HT03564	CORE,BEADS	W4BRH3.5X6X1				
CD351	06CH27090A	CORD CONNECTOR	CH27090A				
CD352	06CH12435A	CORD CONNECTOR	CH12435A				
▲ CD501	120R414903	CORD AC BUSH	0R414903				
CD757	06CH2A019A	CORD CONNECTOR	CH2A019A				
CD801	06CU82039A	CORD CONNECTOR	SM1098-009-1A				
CD803	06CH012101	CORD CONNECTOR	CH012101				
CD851	WHL6032038	FLAT CABLE	AWG26 10C BLACK 320MM				
CD852	06CH01408A	CORD EIS CONNECTOR	CH01408A				
CF601	1022T45R72	FILTER,SAW	SAF45MFY220ZR				
CF603	1011T4R504	FILTER,CERAMIC	EFCT4R5YS5A				
CF604	1011T4R517	FILTER,CERAMIC	EFCT4R5MW5				
CP351	0694260139	CONNECTOR PCB SIDE	173979-6				
CP353	0694270139	CONNECTOR PCB SIDE	173979-7				
▲ CP401	069S450089	CONNECTOR PCB SIDE	A1561WV2-A5P				
▲ CP502	069S420110	CONNECTOR PCB SIDE	A1561WV2-2P				
CP504	069W01001A	CONNECTOR PCB SIDE	003P-2100				
CP505	069W01001A	CONNECTOR PCB SIDE	003P-2100				
CP757	06942A0139	CONNECTOR PCB SIDE	1-173979-0				
CP801	069S320010	CONNECTOR PCB SIDE	A2361WV2-2P				
CD4001	122L061501	CORD JUMPER	2L061501				
CP1001	06972C0010	CONNECTOR PCB SIDE	TMC-J12P-B2				
CP1003	0694240139	CONNECTOR PCB SIDE	173979-4				
CP4001	0697240600	CONNECTOR PCB SIDE	TOC-C04X-B1				
CP4002	069J760029	CONNECTOR PCB SIDE	IMSA-9604S-06Z14				
CP4003	0697120320	CONNECTOR PCB SIDE	TMC-T02X-E1				
CP851A	067U010049	WIRE HOLDER	B2013H02-10P				
CP851B	067U010049	WIRE HOLDER	B2013H02-10P				
CUS012	800WFAA008	CUSHION C					
▲ F501	081PC05004	FUSE	51MS050LCC				
▲ F502	081PC2R504	FUSE	51MS025LCC				

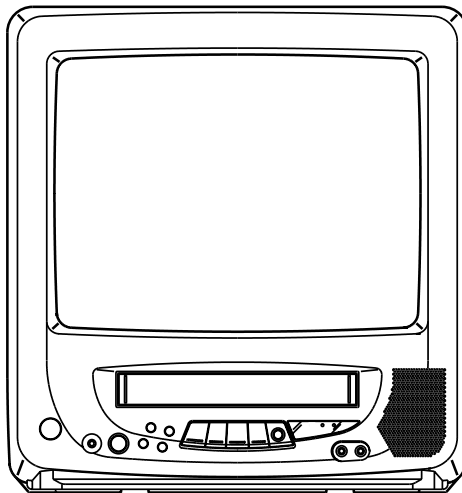
SPEC.NO.	M5A3-04C
O/R NO.	K1X5006



MVT2135B Series E

SERVICE MANUAL

COLOR TELEVISION/VIDEO CASSETTE RECORDER



VHS

**ORIGINAL
MFR'S VERSION C**

SERVICING NOTICES ON CHECKING

1. KEEP THE NOTICES

As for the places which need special attentions, they are indicated with the labels or seals on the cabinet, chassis and parts. Make sure to keep the indications and notices in the operation manual.

2. AVOID AN ELECTRIC SHOCK

There is a high voltage part inside. Avoid an electric shock while the electric current is flowing.

3. USE THE DESIGNATED PARTS

The parts in this equipment have the specific characters of incombustibility and withstand voltage for safety. Therefore, the part which is replaced should be used the part which has the same character.

Especially as to the important parts for safety which is indicated in the circuit diagram or the table of parts as a  mark, the designated parts must be used.

4. PUT PARTS AND WIRES IN THE ORIGINAL POSITION AFTER ASSEMBLING OR WIRING

There are parts which use the insulation material such as a tube or tape for safety, or which are assembled in the condition that these do not contact with the printed board. The inside wiring is designed not to get closer to the pyrogenic parts and high voltage parts. Therefore, put these parts in the original positions.

5. TAKE CARE TO DEAL WITH THE CATHODE-RAY TUBE

In the condition that an explosion-proof cathode-ray tube is set in this equipment, safety is secured against implosion. However, when removing it or serving from backward, it is dangerous to give a shock. Take enough care to deal with it.

6. AVOID AN X-RAY

Safety is secured against an X-ray by considering about the cathode-ray tube and the high voltage peripheral circuit, etc.

Therefore, when repairing the high voltage peripheral circuit, use the designated parts and make sure not modify the circuit.

Repairing except indicates causes rising of high voltage, and it emits an X-ray from the cathode-ray tube.

7. PERFORM A SAFETY CHECK AFTER SERVICING

Confirm that the screws, parts and wiring which were removed in order to service are put in the original positions, or whether there are the portions which are deteriorated around the serviced places serviced or not. Check the insulation between the antenna terminal or external metal and the AC cord plug blades. And be sure the safety of that.

(INSULATION CHECK PROCEDURE)

1. Unplug the plug from the AC outlet.
2. Remove the antenna terminal on TV and turn on the TV.
3. Insulation resistance between the cord plug terminals and the external exposure metal **[Note 2]** should be more than 1M ohm by using the 500V insulation resistance meter **[Note 1]**.
4. If the insulation resistance is less than 1M ohm, the inspection repair should be required.

[Note 1]

If you have not the 500V insulation resistance meter, use a Tester.

[Note 2]

External exposure metal: Antenna terminal
Earphone jack

HOW TO ORDER PARTS

Please include the following informations when you order parts. (Particularly the VERSION LETTER.)

1. MODEL NUMBER and VERSION LETTER

The MODEL NUMBER can be found on the back of each product and the VERSION LETTER can be found at the end of the SERIAL NUMBER.

2. PART NO. and DESCRIPTION

You can find it in your SERVICE MANUAL.

CONTENTS

SERVICING NOTICES ON CHECKING	A1-1
HOW TO ORDER PARTS	A1-1
CONTENTS	A2-1
GENERAL SPECIFICATIONS	A3-1~A3-4
DISASSEMBLY INSTRUCTIONS	
1. REMOVAL OF MECHANICAL PARTS AND P. C. BOARDS	B1-1
2. REMOVAL OF DECK PARTS	B2-1~B2-6
3. REMOVAL OF ANODE CAP	B3-1
4. REMOVAL AND INSTALLATION OF FLAT PACKAGE IC	B4-1, B4-2
KEY TO ABBREVIATIONS	C1-1, C1-2
SERVICE MODE LIST	C2-1
PREVENTIVE CHECKS AND SERVICE INTERVALS	C3-1, C3-2
WHEN REPLACING EEPROM (MEMORY) IC	C4-1
SERVICING FIXTURES AND TOOLS	D1-1
PREPARATION FOR SERVICING	D1-1
MECHANICAL ADJUSTMENTS	D2-1~D2-4
ELECTRICAL ADJUSTMENTS	D3-1~D3-5
BLOCK DIAGRAMS	
TV	E-1, E-2
Y/C/AUDIO/CCD/HEAD AMP	E-3, E-4
MICON/OPERATION/IN/OUT	E-5, E-6
PRINTED CIRCUIT BOARDS	
OPERATION	F-1, F-2
SYSCON/CRT	F-3~F-6
SCHEMATIC DIAGRAMS	
Y/C/AUDIO/CCD/HEAD AMP	G-1, G-2
MICON	G-3, G-4
IN/OUT	G-5, G-6
CHROMA/IF	G-7, G-8
SOUND AMP	G-9, G-10
POWER	G-11, G-12
DEFLECTION	G-13, G-14
CRT	G-15, G-16
OPERATION	G-17, G-18
INTERCONNECTION DIAGRAM	G-19, G-20
WAVEFORMS	H-1, H-2
MECHANICAL EXPLODED VIEWS	I1-1, I1-2
CHASSIS EXPLODED VIEWS	I2-1, I2-2
MECHANICAL REPLACEMENT PARTS LIST	J1-1
CHASSIS REPLACEMENT PARTS LIST	J2-1
ELECTRICAL REPLACEMENT PARTS LIST	J3-1, J3-2

GENERAL SPECIFICATIONS

G-1	TV System	CRT	CRT Size / Visual Size	13 inch / 335.4 mmV
			CRT Type	Normal
			Deflection	90 degree
			Magnetic Field BV/BH	+0.45G / +0.18G
		Color System		NTSC
		Speaker		1Speaker
			Position	Front
			Size	1.5 x 2.5 Inch
			Impedance	8 ohm
		Sound Output	MAX	1.5 W
G-2	VCR System		10%(Typical)	1.0 W
		System		VHS Player / Recorder
		Video System		NTSC
		Hi-Fi STEREO		No
		NTSC PB		-
		Deck	DECK	OVD-7
			Loading System	Front
			Motor	3
		Heads	Video Head	2Head
			FM Audio Head	No
			Audio /Control	Mono /Yes
			Erase(Full Track Erase)	Yes
		Tape Speed	Rec	PAL
			NTSC	SP/SLP
			Play	PAL
G-3	Tuning System		NTSC	SP/LP/SLP
		Fast Forward / Rewind Time (Approx.)		FF:4'50"/REW:2'30"
			with Cassette	T-120
		Forward/Reverse	NTSC or PAL-M	SP/LP/SLP=3x,5x/7x,9x/9x,15x
		Picture Search		
		Frame Advance		-
		Slow Speed		-
		Broadcasting System		US System M
		Tuner and Receive CH	System	1Tuner
			Destination	US(w/CATV)
G-4	Signal		Tuning System	F-Synth
			Input Impedance	VHF/UHF 75 ohm
			CH Coverage	2~69, 4A,A-5~A-1, A~I, J~W,W+1~W+84
		Intermediate Frequency	Picture(FP)	45.75 MHz
			Sound(FS)	41.25 MHz
			FP-FS	4.5 MHz
		Preset CH		No
		Stereo/Dual TV Sound		No
		Tuner Sound Muting		Yes
		Video Signal	Input Level	1 V p-p/75 ohm
			Output Level	-
			S/N Ratio (Weighted)	50dB
			Horizontal Resolution at SP Mode	220Lines
		Audio Signal	Input Level	-8dBm/50Kohm
			Output Level	-
G-5	Power		S/N Ratio at SP (Weighted)	38dB
			Harmonic Distortion at SP (1KHz)	1.5 %
			Frequency Response at SP	100Hz - 10kHz
			at LP	100Hz - 6kHz
			at SLP	100Hz - 4kHz
		Hi-Fi Audio Signal	Dynamic Range : More than	- dB
			Wow And Flutter : Less than	- %Wrms
			Channel Separation : More than	- dB
			Harmonic Distortion : Less than	- %
		Power Source	AC	120V,60Hz
G-6	Regulation		DC	-
		Power Consumption	at AC	65 W at 120V 60Hz
			at DC	-
			Stand by (at AC)	5 W at 120V 60Hz
			Per Year	-
G-7	Temperature	Protector	Power Fuse	Yes
			Dew Sensor	No
G-8	Operating Humidity		Safety	UL
			Radiation	FCC
			X-Radiation	DHHS
G-9	On Screen Display	Menu	Operation	+5°C ~ +40°C
			Storage	-20°C ~ +60°C
		Menu Type		Less then 80% RH
G-9	On Screen Display			Yes
				Charactor

GENERAL SPECIFICATIONS

		Timer Rec Set		Yes
		Channel Setup		Yes
		TV/CATV		Yes
		Auto CH Memory		Yes
		Add/ Delete		Yes
		Guide CH Set		No
		TV Setup		Yes
		V-chip Set		Yes
		On/Off Timer Set		Yes
		Picture		Yes
		Audio		No
		Sap On/Off		No
		Auto Repeat On/Off		Yes
		System Setup		Yes
		Clock Set		Yes
		Language		Yes
		Auto Clock On/Off		Yes
		Standard Time		Yes
		Daylight Saving Time		Yes
		Commercial Advance		No
		Marking On/Off		No
		Blueback On/Off		No
		Playback Auto/Manual		No
		Unmarked Tape		No
		Movie Advance		No
		Go To Movie		No
		Go To Preview		No
		G-CODE(or SHOWVIEW or PLUSCODE)No. Entry		No
		Clock / Date		Yes
		CH/AV		Yes
		Tape Counter(Linear Counter)		Yes
		Tape Speed		Yes
		Sleep Time		Yes
		Stereo/Audio Output		No
		Bilingual		No
		SAP		No
		Control	Volume	Yes
		Level	Bright / Contrast / Sharpness / Color	Yes
			Tint	Yes
			Bass/Treble/Balance	No
			Manual Tracking	Yes
		Play/Stop/FF/Rew/Rec/OTR/T-Rec/Pause/Eject/Tape In (Symbol Mark)		Yes
		Auto Tracking/Manual Tracking		Yes
		Caption / Text		Yes
		Index		No
		Muting		Yes
		Hi-Fi		No
		Repeat		Yes
		Zero Return		No
		DEW		No
G-10	OSD Language	OSD Language Setting		English French Spanish English
G-11	Clock,Timer and Timer Back-up	Calendar		1990/1/1 ~ 2081/12/31
		Timer Events		8 Program/ 1 Month
		One Touch Recording Max Time		5 Hours
		OTPB Valid Time		No
		Sleep Timer	Max Time	120 Min
			Step	10 Min
		On/Off Timer		1 Program
		Auto Shut Off	No Signal	15 Min
			No Operation	-
		Timer Back-up (at Power Off Mode)		5 Sec
G-12	Remote Control	Unit		RC-CG
		Glow in Dark Remocon		Yes
		Power Source	Voltage(D.C)	3V
			UM size x pcs	UM-4 x 2 pcs
		Total Keys		41 Keys
		Keys	Power	Yes
			1	Yes
			2	Yes
			3	Yes
			4	Yes
			5	Yes
			6	Yes
			7	Yes
			8	Yes
			9	Yes

GENERAL SPECIFICATIONS

		0	Yes
		CH Up	Yes
		CH Down	Yes
		Volume Up	Yes
		Volume Down	Yes
		Input Select	Yes
		Play	Yes
		F.Fwd	Yes
		Rew	Yes
		Pause/Still	Yes
		Stop	Yes
		Rec/OTR	Yes
		Eject	Yes
		Counter Reset	Yes
		Speed	Yes
		Timer Rec	Yes
		TV Monitor	Yes
		Quick View	Yes
		Program	Yes
		Slow	No
		Auto Tracking	Yes
		Set/Tracking+	Yes
		Set/Tracking -	Yes
		Menu	Yes
		Enter	Yes
		Cancel	Yes
		Call	Yes
		TV/Caption/Text	Yes
		Sleep Timer	Yes
		Muting	Yes
		Zero Return	Yes
		CM Skip	Yes
		Audio Select	No
G-13	Features	Auto Head Cleaning	Yes
		Auto Tracking	Yes
		HQ (VHS Standard High Quality)	Yes
		Auto Power On, Auto Play, Auto Rewind, Auto Eject	Yes
		VIDEO PLUS+(SHOWVIEW,G-CODE)	No
		Auto Clock	Yes
		Forward / Reverse Picture Search	Yes
		Reverse Slow	No
		One Touch Playback	No
		Auto CH Memory	Yes
		Closed Caption	Yes
		TV Auto Shut off Function	Yes
		End Call	No
		Index Search	No
		SQPB	No
		CATV	Yes
		CM Skip(30sec x 6 Times)	Yes
		Comb Filter	No
		TV Monitor	Yes
		Program Extend	No
		Choke Coil	No
		Energy Star	Yes
		Protect of FBT Leak Curcuit	No
		Dirty Head	No
		V-chip USA V-chip	Yes
		CANADA V-chip	No
		Zero Return	Yes
		CM Advance	No
		Movie Advance	No
G-14	Accessories	Owner's Manual Language	English/Spanish
		w/Guarantee Card	No
		Remote Control Unit	Yes
		Battery	No
		UM size x pcs	-
		Rod Antenna	Yes
		Poles	1 pole
		Terminal	F type
		w/300 ohm to 75 ohm Antenna Adapter	No
		Loop Antenna	No
		Terminal	-
		U/V Mixer	No
		300 ohm to 75 ohm Antenna Adapter	No
		Antenna Change Plug	No

GENERAL SPECIFICATIONS

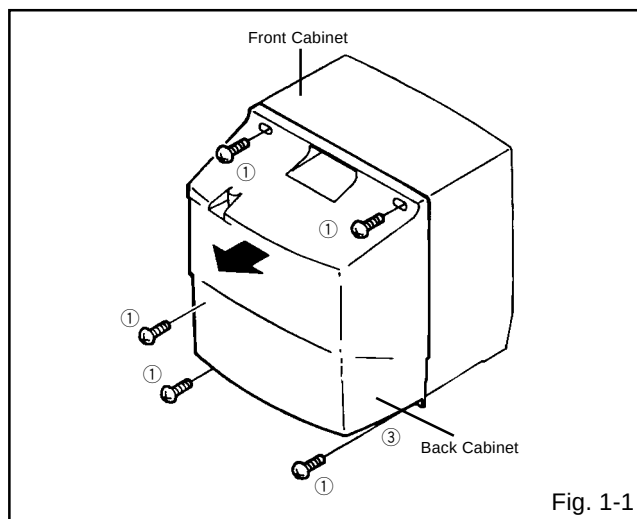
		DC Car Cord (Center+)		No	
		AC Plug Adapter		No	
		AC Cord		No	
		AV Cord (2Pin-1Pin)		No	
		Guarantee Card	Yes		
		Registration Card		No	
		ESP Card		No	
		Warning Sheet		No	
		Dew/AHC Caution Sheet		No	
		Quick Set-up Sheet		No	
		Circuit Diagram		No	
		Service Facility List		No	
		Important Safeguard		No	
		Informatin Sheet		No	
G-15	Interface	Switch	Power	Yes	
			Play	Yes	
			Pause/Still	No	
			System Select	No	
			One Touch Playback	No	
			Channel Up	Yes	
			Channel Down	Yes	
			F.FWD/Cue	Yes	
			Eject/Stop	Yes	
			Main Power SW	No	
			Volume Up	Yes	
			Volume Down	Yes	
			Rew/Rev	Yes	
			Rec/OTR	Yes	
			Input Select	No	
		Indicator	Power	No	
			Rec/OTR	Red	
			T-Rec	Red	
			On Timer	No	
		Key Light up	CS	No	
			Rec/OTR	No	
			One Touch Playback	No	
		Terminals	Front	Play	No
				Video Input	RCA x 1 RCA x 1 Head Phone(Stereo & Mono, 3.5mm)
				Audio Input	
			Other Terminal		
			Rear	Video Input	No
Audio Input	No				
Video Output	No				
Audio Output	No				
Euro Scart	No				
Diversity	No				
Ext Speaker	W No				
DC Jack 12V(Center +)	No				
VHF/UHF Antenna Input	F Type				
AC Inlet	No				
G-16	Set Size	Approx. W x D x H (mm)	362 x 370.5 x 382		
G-17	Weight	Net (Approx.)	11.0	(24.3 lbs)	
		Gross (Approx.)	12.5	(27.6 lbs)	
G-18	Carton	Master Carton	No		
			Content	-	
			Material	-	
			Dimensions W x D x H(mm)	-	
			Description of Origin	-	
		Gift Box	Yes		
			Material	Double/White	
			Dimensions W x D x H(mm)	423 x 447 x 443	
			Design	As per Buyer's	
			Description of Origin	Yes	
		Drop Test	Natural Dropping At	1 Corner / 3 Edges / 6 Surfaces	
				Height (cm)	62
Container Stuffing(40' container)	700 Sets				
G-19	Cabinet Material	Cabinet Front	PS	94V0/DECABROM	
		Cabinet Rear	PS	94V0/DECABROM	

DISASSEMBLY INSTRUCTIONS

1. REMOVAL OF MECHANICAL PARTS AND P.C. BOARDS

1-1: BACK CABINET (Refer to Fig. 1-1)

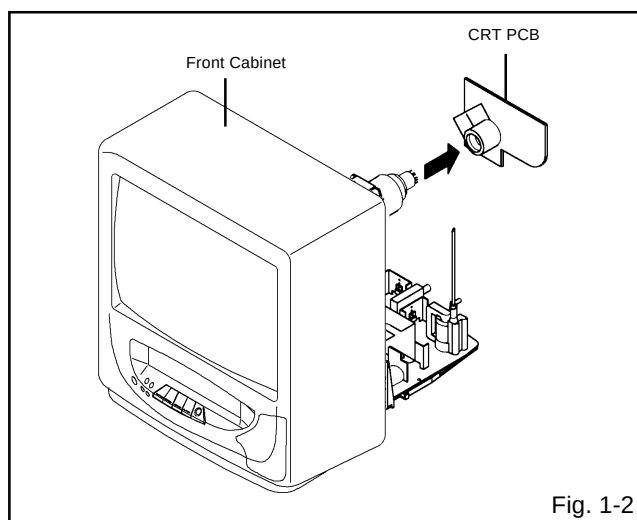
1. Remove the 5 screws ①.
2. Remove the AC cord from the AC cord hook ③.
3. Remove the Back Cabinet in the direction of arrow.



1-2: CRT PCB (Refer to Fig. 1-2)

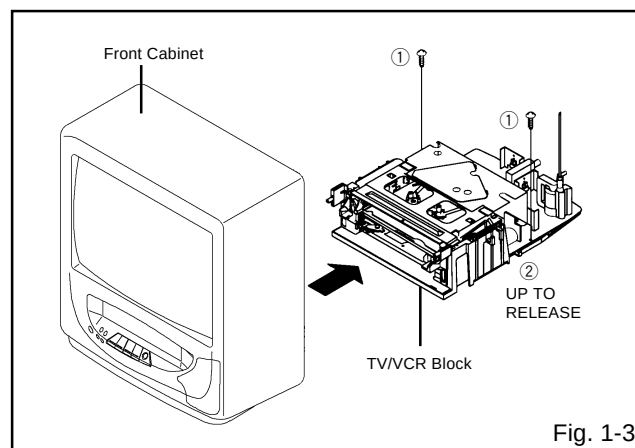
CAUTION: BEFORE REMOVING THE ANODE CAP, DISCHARGE ELECTRICITY BECAUSE IT CONTAINS HIGH VOLTAGE. BEFORE ATTEMPTING TO REMOVE OR REPAIR ANY PCB, UNPLUG THE POWER CORD FROM THE AC SOURCE.

1. Remove the Anode Cap.
(Refer to REMOVAL OF ANODE CAP)
2. Disconnect the following connectors:
(CP801 and CP851B).
3. Remove the CRT PCB in the direction of arrow.



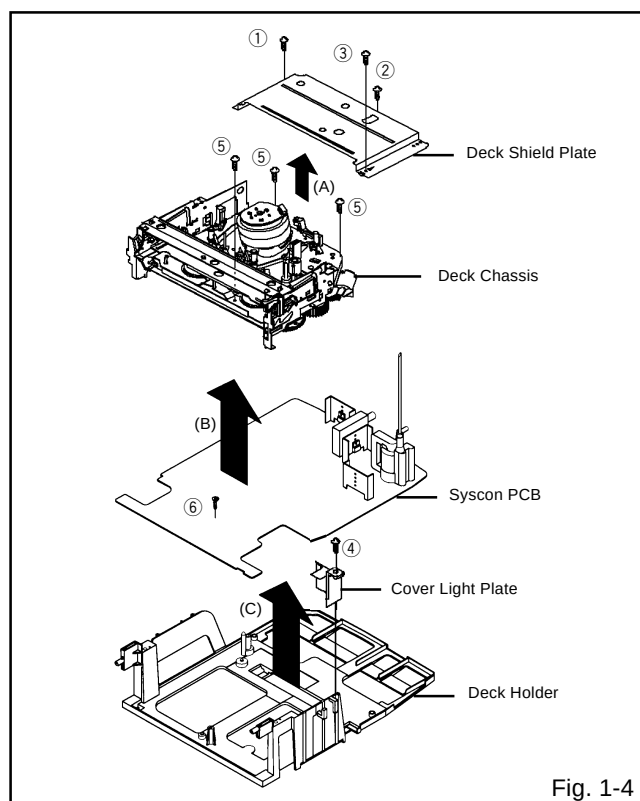
1-3: TV/VCR BLOCK (Refer to Fig. 1-3)

1. Remove the 2 screws ①.
2. Disconnect the following connectors:
(CP757, CP351, CP401 and CP502).
3. Unlock the support ②.
4. Remove the TV/VCR Block in the direction of arrow.



1-4: DECK CHASSIS AND SYSCON PCB (Refer to Fig. 1-4)

1. Remove the screw ①.
2. Remove the screw ②.
3. Remove the screw ③.
4. Remove the Deck Shield Plate in direction of arrow (A).
5. Remove the screw ④.
6. Remove the Cover Light Plate in direction of arrow (C).
7. Remove the 3 screws ⑤.
8. Disconnect the following connectors:
CP1001, CP4001, CP4002 and CP4003).
9. Remove the Deck Chassis in the direction of arrow (B).
10. Remove the screw ⑥.
11. Remove the Syscon PCB in the direction of arrow (C).



DISASSEMBLY INSTRUCTIONS

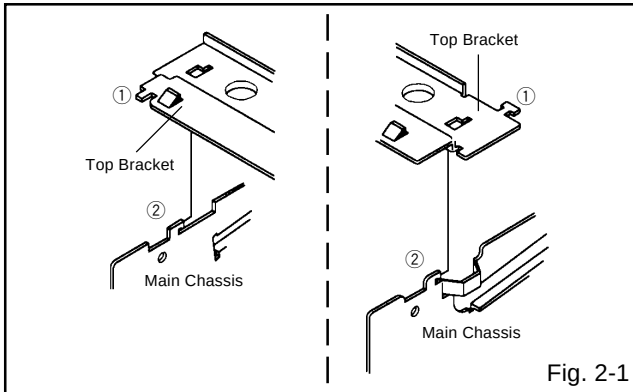
2. REMOVAL OF DECK PARTS

2-1: TOP BRACKET (Refer to Fig. 2-1)

1. Extend the 2 supports ①.
2. Slide the 2 supports ② and remove the Top Bracket.

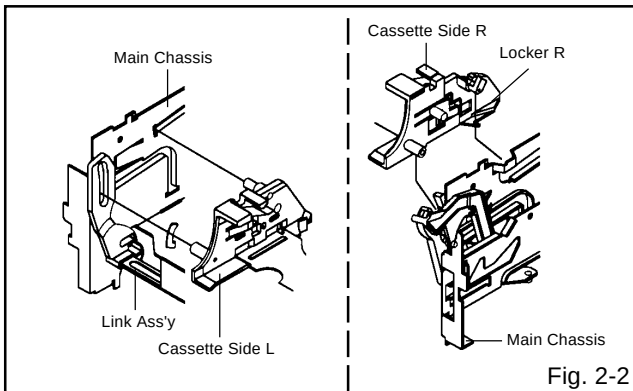
NOTE

1. After the installation of the Top Bracket, bend the support ① so that the Top Bracket is fixed.



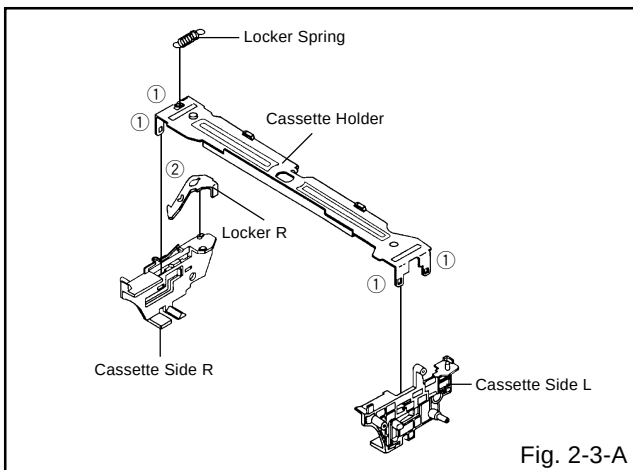
2-2: CASSETTE HOLDER ASS'Y (Refer to Fig. 2-2)

1. Move the Cassette Holder Ass'y to the front side.
2. Push the Locker R to remove the Cassette Side R.
3. Remove the Cassette Side L.



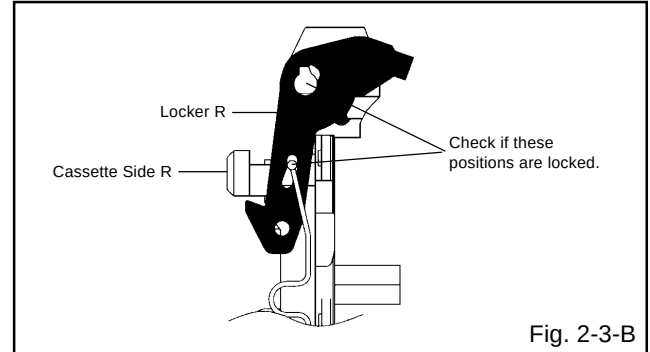
2-3: CASSETTE SIDE L/R (Refer to Fig. 2-3-A)

1. Remove the Locker Spring.
2. Unlock the 4 supports ① and then remove the Cassette Side L/R.
3. Unlock the support ② and then remove the Locker R.



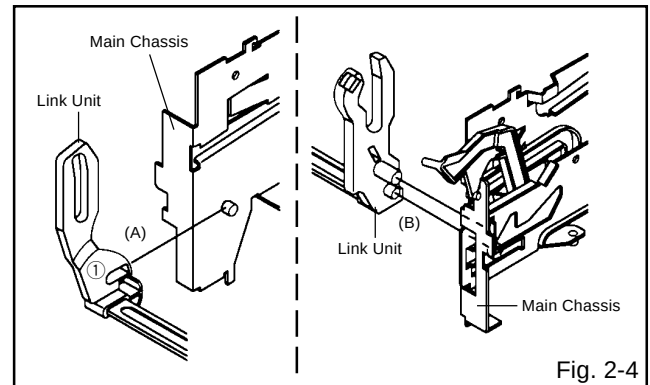
NOTE

1. In case of the Locker R installation, check if the two positions of Fig.2-3-B are correctly locked.
2. When you install the Cassette Side R, be sure to move the Locker R after installing.



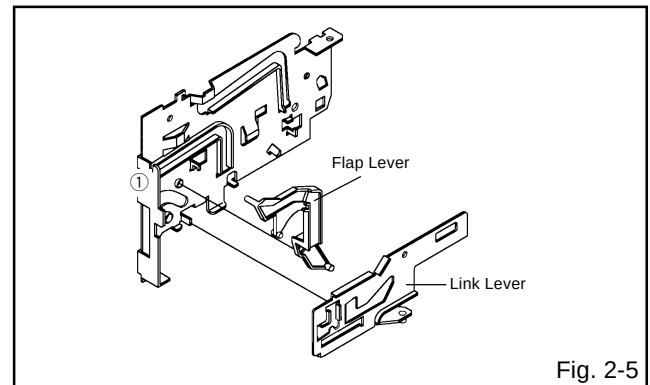
2-4: LINK UNIT (Refer to Fig. 2-4)

1. Set the Link Unit to the Eject position.
2. Unlock the support ①.
3. Remove the (A) side of the Link Unit first, then remove the (B) side.



2-5: LINK LEVER/FLAP LEVER (Refer to Fig. 2-5)

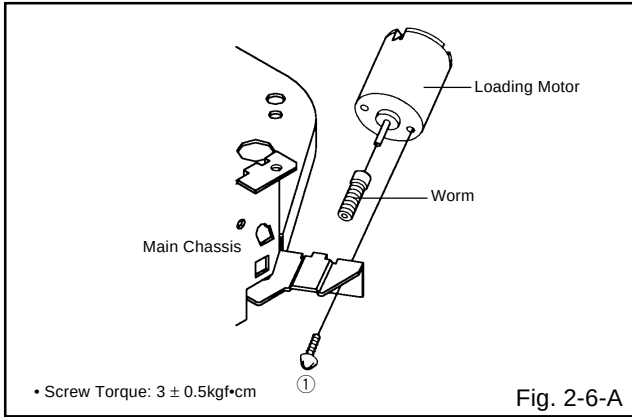
1. Extend the support ①.
2. Remove the Link Lever.
3. Remove the Flap Lever.



DISASSEMBLY INSTRUCTIONS

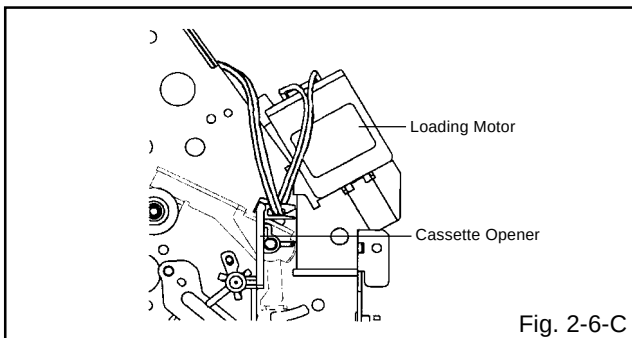
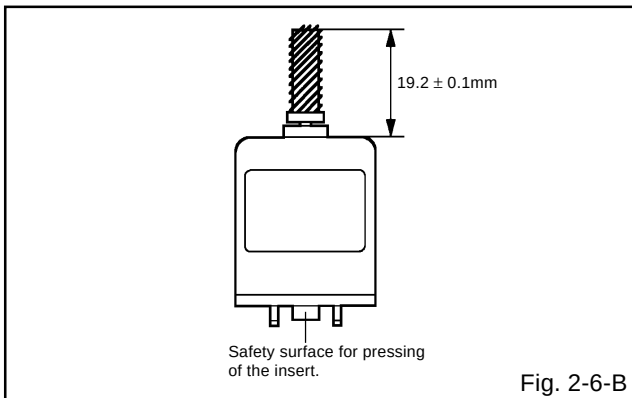
2-6: LOADING MOTOR/WORM (Refer to Fig. 2-6-A)

1. Remove the screw ①.
2. Remove the Loading Motor.
3. Remove the Worm.



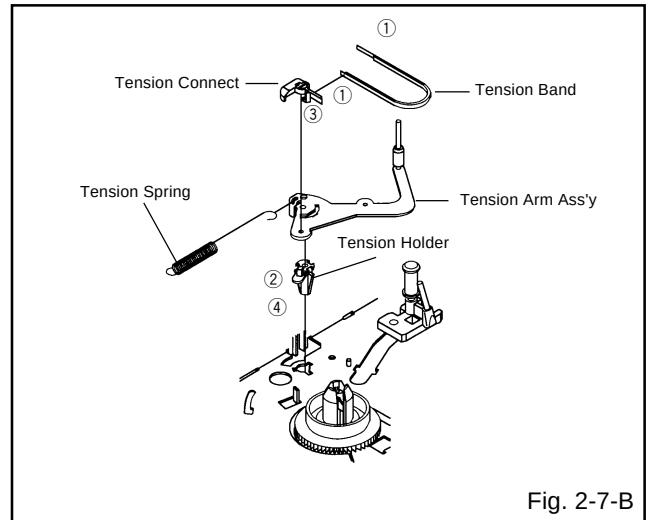
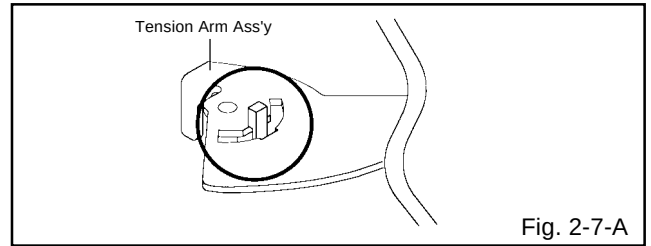
NOTE

1. In case of the Worm installation, check if the value of the Fig. 2-6-B is correct.
2. In case of the Loading Motor installation, hook the wire on the Cassette Opener as shown Fig. 2-6-C.



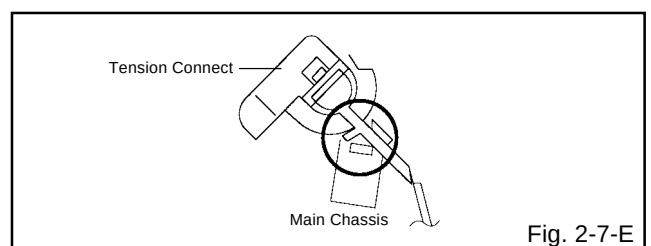
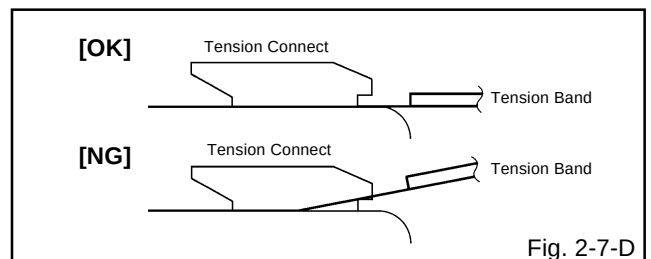
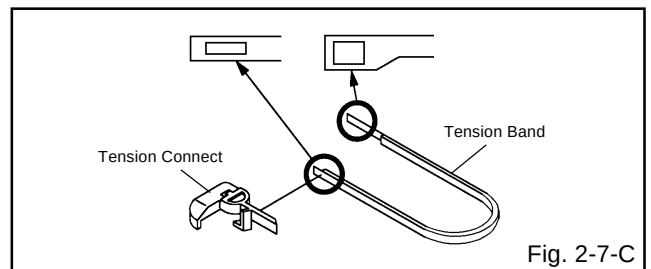
2-7: TENSION ASS'Y (Refer to Fig. 2-7-B)

1. Turn the Pinch Roller Cam clockwise so that the Tension Holder hook is set to the position of Fig. 2-7-A to move the Tension Arm Ass'y.
2. Remove the Tension Spring.
3. Unlock the 2 supports ① and remove the Tension Band.
4. Unlock the support ② and remove the Tension Arm Ass'y.
5. Unlock the support ③ and remove the Tension Connect.
6. Float the hook ④ and turn it clockwise then remove the Tension Holder.



NOTE

1. In case of the Tension Band installation, note the direction of the installation. (Refer to Fig. 2-7-C)
2. In case of the Tension Band installation, install correctly as Fig. 2-7-D.
3. In case of the Tension Connect installation, install as the circled section of Fig. 2-7-E.



DISASSEMBLY INSTRUCTIONS

2-8: T BRAKE ARM/T BRAKE BAND (Refer to Fig. 2-8-A)

1. Remove the T Brake Spring.
2. Turn the T Brake Arm clockwise and bend the hook section to remove it.
3. Unlock the 2 supports ① and remove the T Brake Band.

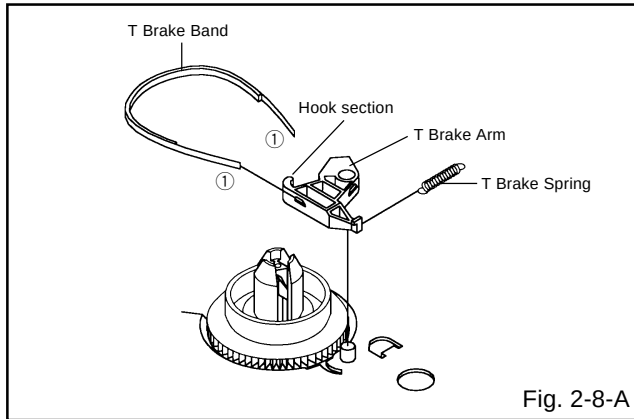


Fig. 2-8-A

NOTE

1. In case of the T Brake Band installation, install correctly as Fig. 2-8-B.

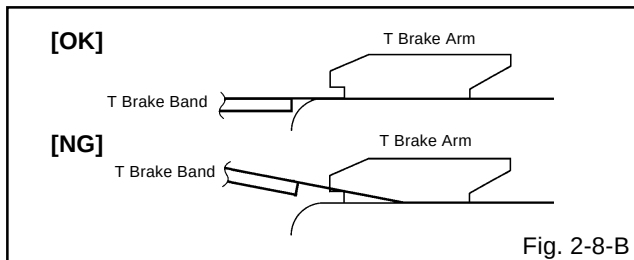


Fig. 2-8-B

2-9: S REEL/T REEL/IDLER ARM ASS'Y/IDLER GEAR (Refer to Fig. 2-9-A)

1. Remove the S Reel and T Reel.
2. Remove the 2 Polyslider Washers ①.
3. Remove the Idler Arm Ass'y and Idler Gear.

NOTE

1. Take care not to damage the gears of the S Reel and T Reel.
2. The Polyslider Washer may be remained on the back of the reel.
3. Take care not to damage the shaft.
4. Do not touch the section "A" of S Reel and T Reel. (Use gloves.) (Refer to Fig. 2-9-A) Do not adhere the stains on it.
5. When you install the reel, clean the shaft and grease it (FG-84M). (If you do not grease, noise may be heard in FF/REW mode.)
6. After installing the reel, adjust the height of the reel. (Refer to MECHANICAL ADJUSTMENT)

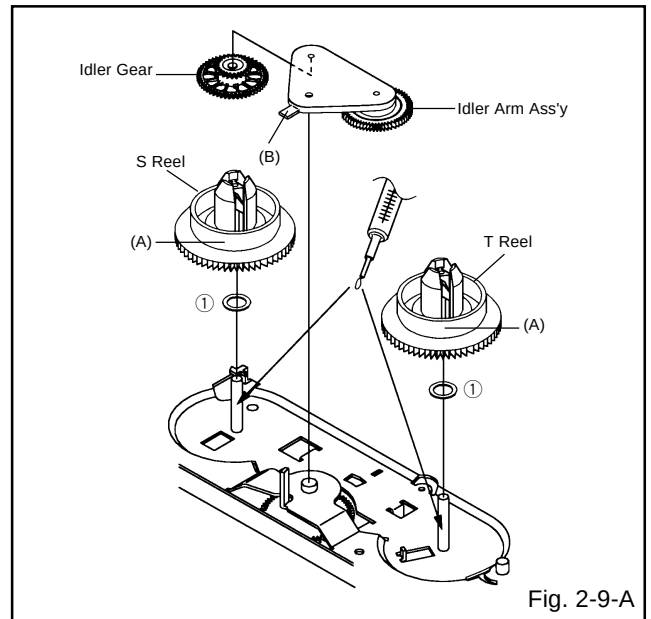


Fig. 2-9-A

NOTE

1. In case of the S Reel and T Reel installation, check if the correct parts are installed. (Refer to Fig. 2-9-B)
2. In case of the Idler Arm Ass'y installation, install correctly as Fig. 2-9-C. And also set it so that the section "B" of Fig. 2-9-A is placed under the Main Chassis tab.

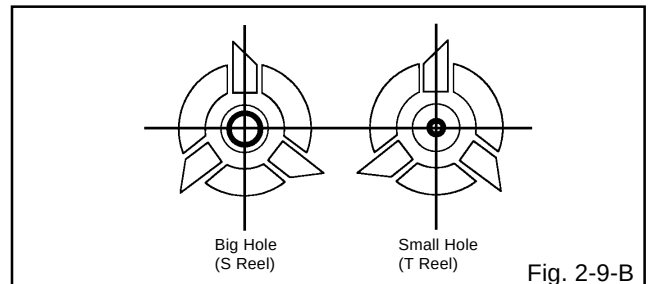


Fig. 2-9-B

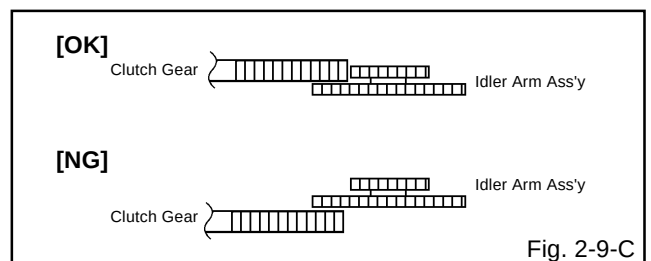
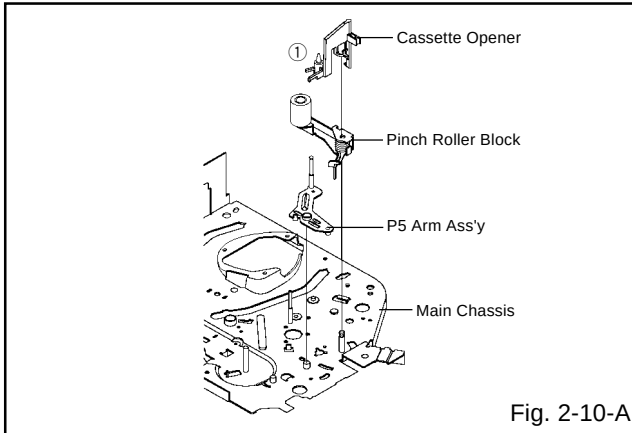


Fig. 2-9-C

DISASSEMBLY INSTRUCTIONS

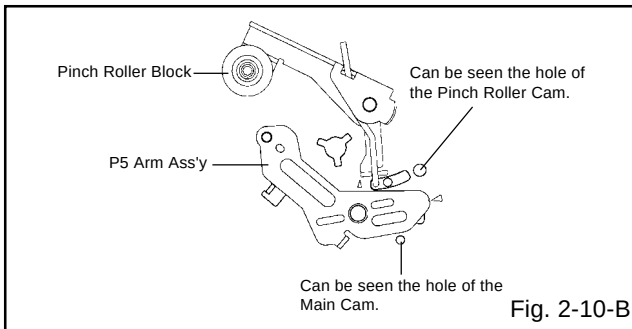
2-10: CASSETTE OPENER/PINCH ROLLER BLOCK/ P5 ARM ASS'Y (Refer to Fig. 2-10-A)

1. Unlock the support ① and remove the Cassette Opener.
2. Remove the Pinch Roller Block and P5 Arm Ass'y.



NOTE

1. Do not touch the Pinch Roller. (Use gloves.)
2. In case of the Pinch Roller Block and the Pinch Roller Cam installation, install correctly as Fig. 2-10-B.

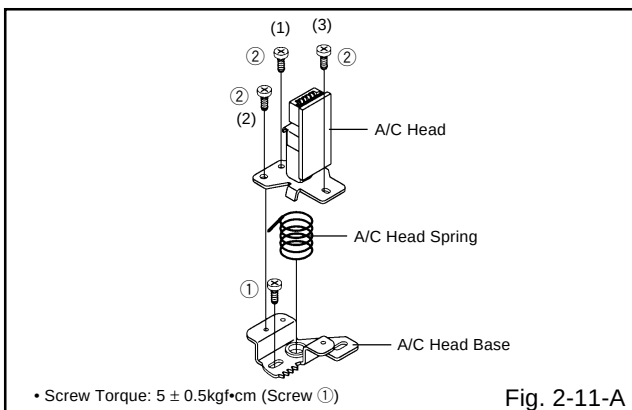


2-11: A/C HEAD (Refer to Fig. 2-11-A)

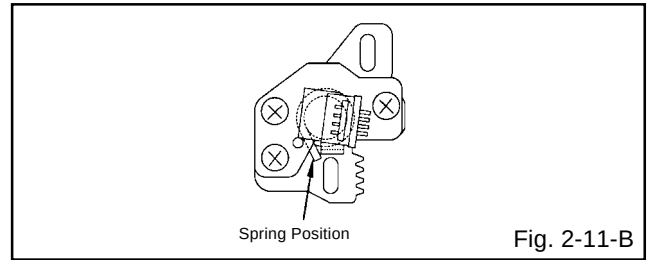
1. Remove the screw ①.
2. Remove the A/C Head Base.
3. Remove the 3 screws ②.
4. Remove the A/C Head and A/C Head Spring.

NOTE

1. Do not touch the A/C Head. (Use gloves.)
2. When you install the A/C Head Spring, install as shown in Fig. 2-11-B.
3. When you install the A/C Head, tighten the screw (1) first, then tighten the screw (2), finally tighten the screw (3).

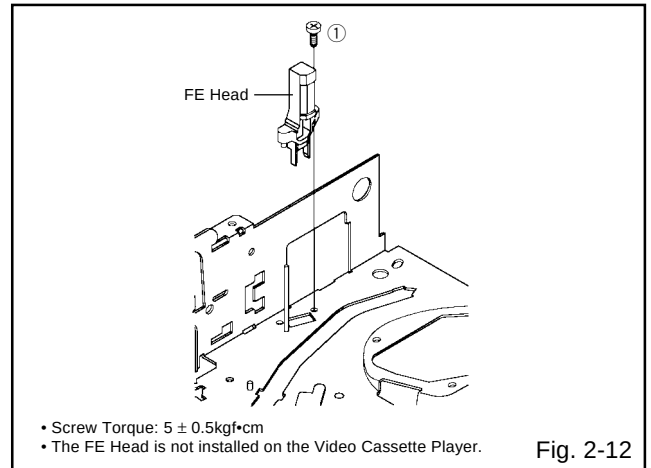


• Screw Torque: $5 \pm 0.5 \text{ kgf} \cdot \text{cm}$ (Screw ①)



2-12: FE HEAD (RECORDER ONLY) (Refer to Fig. 2-12)

1. Remove the screw ①.
2. Remove the FE Head.



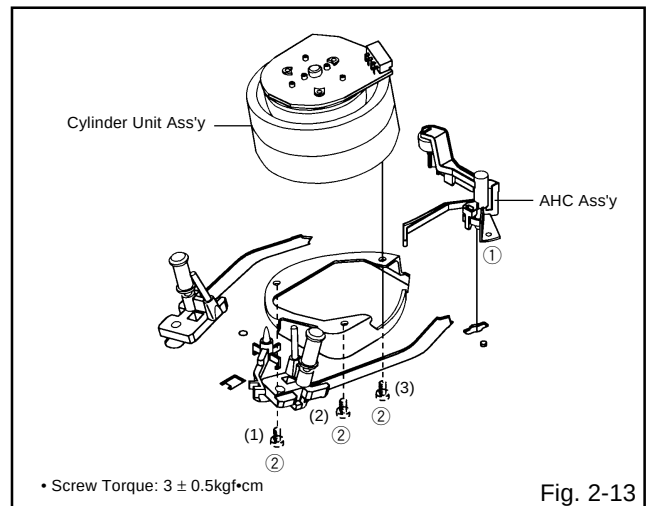
• Screw Torque: $5 \pm 0.5 \text{ kgf} \cdot \text{cm}$
• The FE Head is not installed on the Video Cassette Player.

2-13: AHC ASS'Y/CYLINDER UNIT ASS'Y (Refer to Fig. 2-13)

1. Unlock the support ① and remove the AHC Ass'y.
2. Disconnect the following connector: (CD2001)
3. Remove the 3 screws ②.
4. Remove the Cylinder Unit Ass'y.

NOTE

1. When you install the Cylinder Unit Ass'y, tighten the screws from (1) to (3) in order while pulling the Ass'y toward the left front direction.

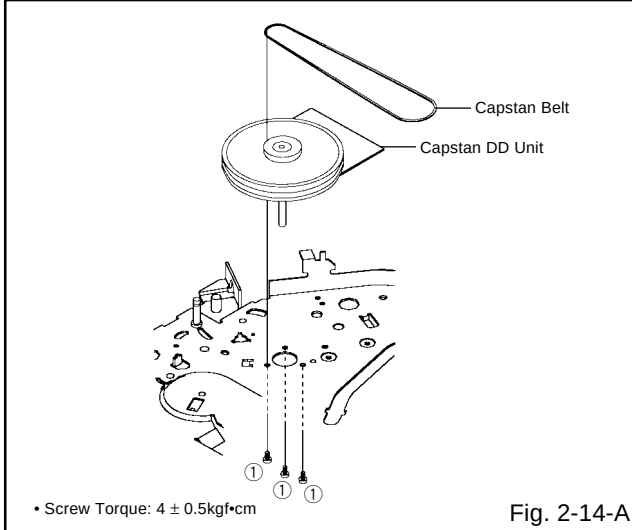


• Screw Torque: $3 \pm 0.5 \text{ kgf} \cdot \text{cm}$

DISASSEMBLY INSTRUCTIONS

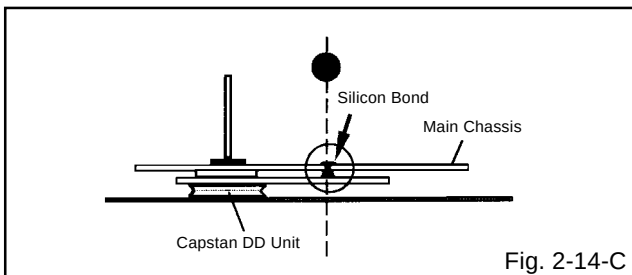
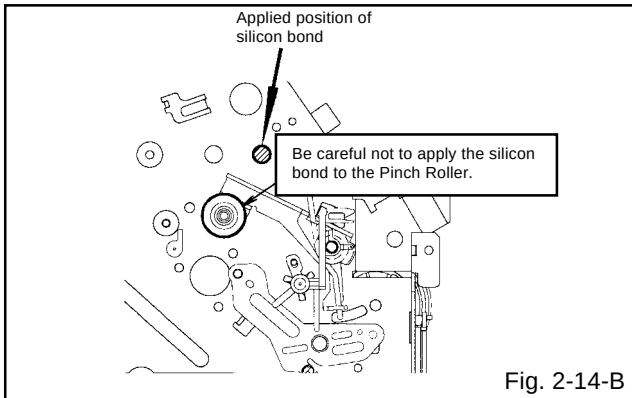
2-14: CAPSTAN DD UNIT (Refer to Fig. 2-14-A)

1. Remove the Capstan Belt.
2. Remove the 3 screws ①.
3. Remove the Capstan DD Unit.



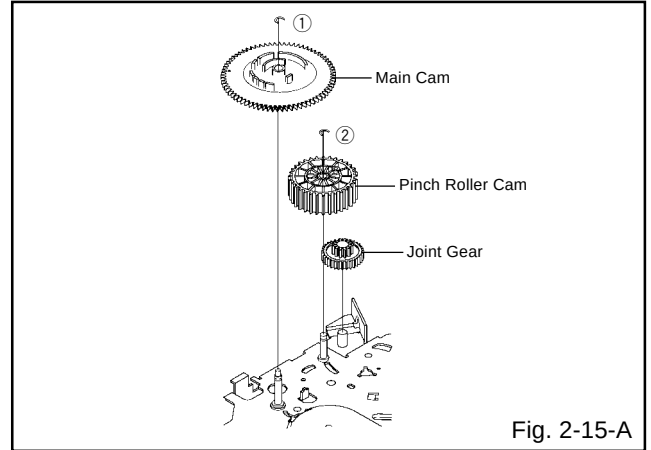
NOTE

1. In case of the Capstan DD Unit installation, apply the silicon bond (TSE3843-W) on the position Fig. 2-14-B correctly. (If no silicon bond applied, abnormal noise will be heard on the deck operation.)
(Refer to Fig. 2-14-B, C)



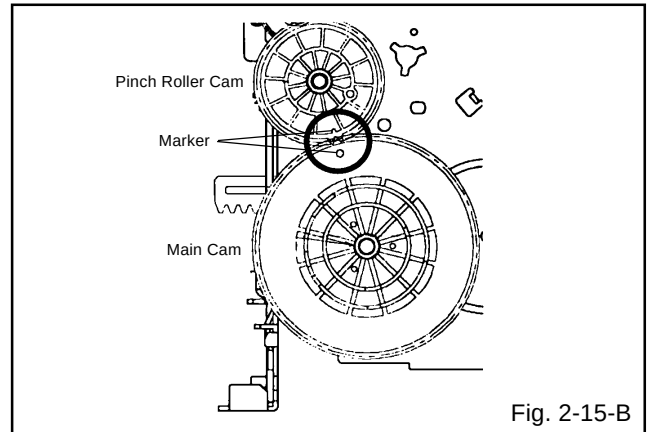
2-15: MAIN CAM/PINCH ROLLER CAM/JOINT GEAR (Refer to Fig. 2-15-A)

1. Remove the E-Ring ①, then remove the Main Cam.
2. Remove the E-Ring ②, then remove the Pinch Roller Cam and Joint Gear.



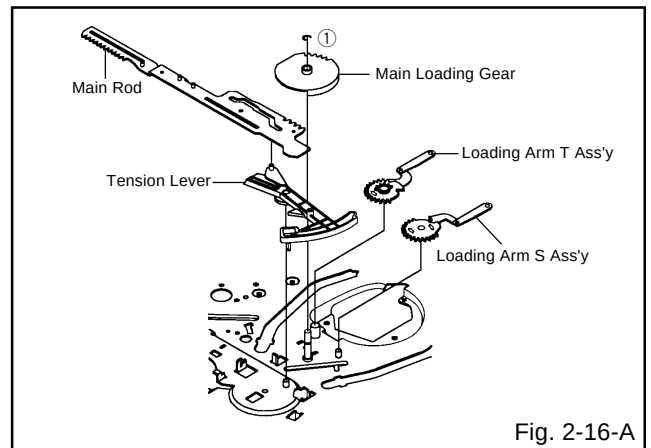
NOTE

1. In case of the Pinch Roller Cam and Main Cam installation, install them as the circled section of Fig. 2-15-B so that the each markers are met. (Refer to Fig. 2-15-B)



2-16: LOADING GEAR S/T ASS'Y (Refer to Fig. 2-16-A)

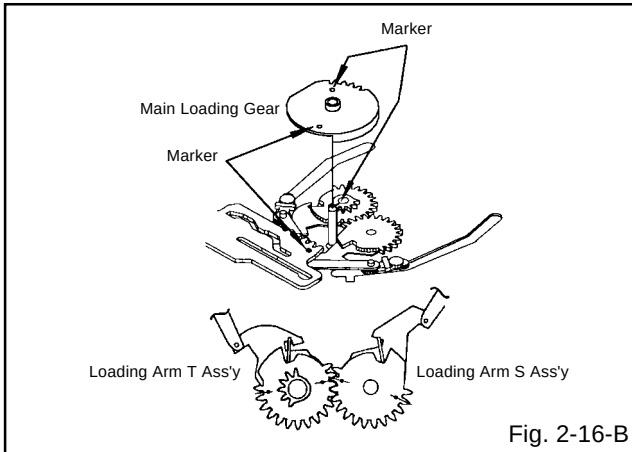
1. Remove the E-Ring ① and remove the Main Loading Gear.
2. Remove the Main Rod, Tension Lever, Loading Arm S Ass'y and Loading Arm T Ass'y.



DISASSEMBLY INSTRUCTIONS

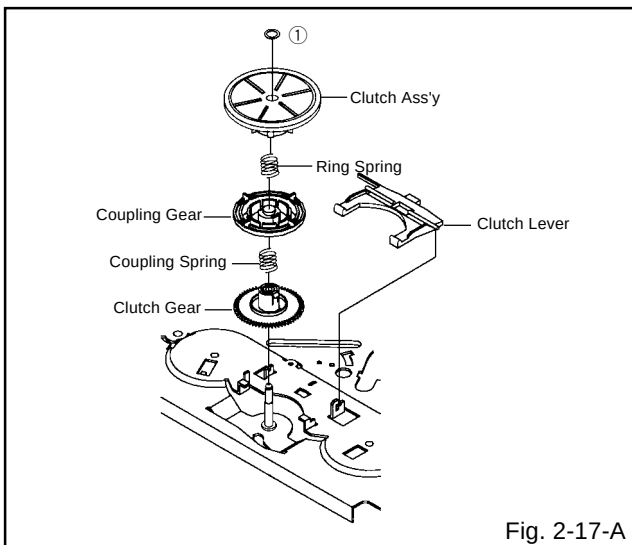
NOTE

1. When you install the Loading Arm S Ass'y, Loading Arm T Ass'y and Main Loading Gear, align each marker.
(Refer to Fig. 2-16-B)



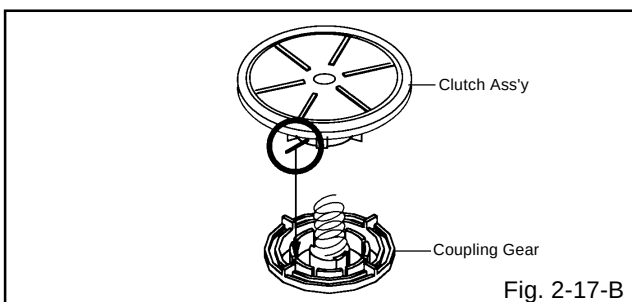
2-17: CLUTCH ASS'Y/RING SPRING/CLUTCH LEVER/CLUTCH GEAR (Refer to Fig. 2-17-A)

1. Remove the Polyslider Washer ①.
2. Remove the Clutch Ass'y and Ring Spring.
3. Remove the Clutch Lever.
4. Remove the Coupling Gear, Coupling Spring and Clutch Gear.



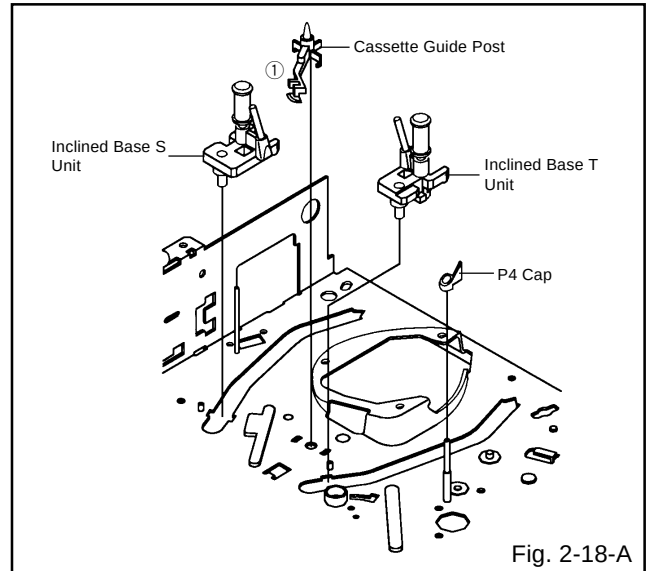
NOTE

1. In case of the Clutch Ass'y installation, install it with inserting the spring of the Clutch Ass'y into the dent of the Coupling Gear. (Refer to Fig. 2-17-B)



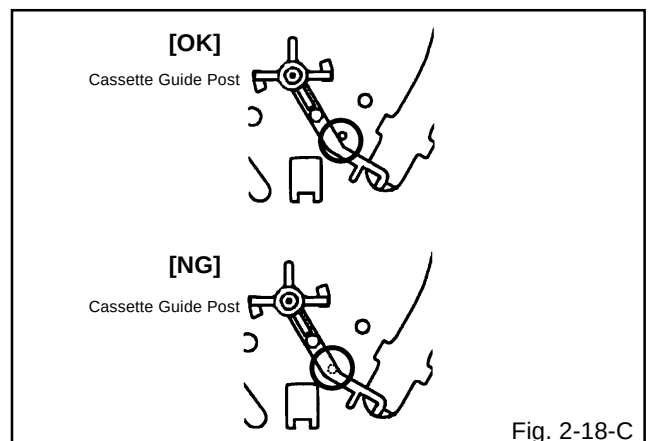
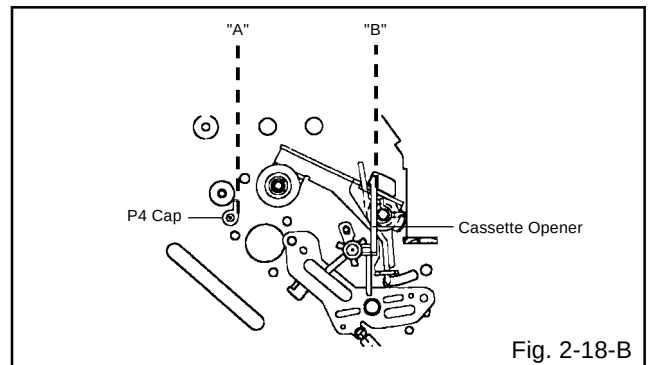
2-18: CASSETTE GUIDE POST/INCLINED BASE S/T UNIT/P4 CAP (Refer to Fig. 2-18-A)

1. Remove the P4 Cap.
2. Unlock the support ① and remove the Cassette Guide Post.
3. Remove the Inclined Base S Unit and Inclined Base T Unit.



NOTE

1. Do not touch the roller of Guide Roller.
2. In case of the P4 Cap installation, install it with parallel for "A" and "B" of Fig. 2-18-B.
3. In case of the Cassette Guide Post installation, install correctly as the circled section of Fig. 2-18-C.



DISASSEMBLY INSTRUCTIONS

3. REMOVAL OF ANODE CAP

Read the following **NOTED** items before starting work.

- * After turning the power off there might still be a potential voltage that is very dangerous. When removing the Anode Cap, make sure to discharge the Anode Cap's potential voltage.
- * Do not use pliers to loosen or tighten the Anode Cap terminal, this may cause the spring to be damaged.

REMOVAL

1. Follow the steps as follows to discharge the Anode Cap.
(Refer to Fig. 3-1.)

Connect one end of an Alligator Clip to the metal part of a flat-blade screwdriver and the other end to ground. While holding the plastic part of the insulated Screwdriver, touch the support of the Anode with the tip of the Screwdriver.

A cracking noise will be heard as the voltage is discharged.

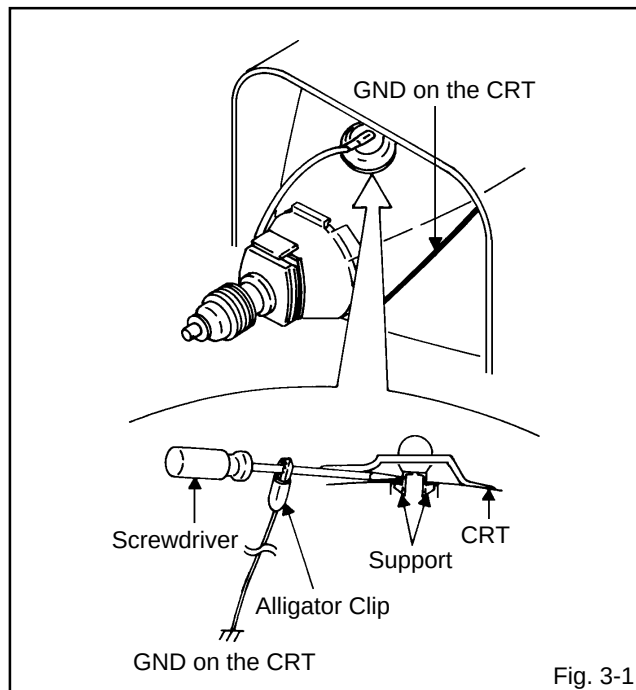


Fig. 3-1

2. Flip up the sides of the Rubber Cap in the direction of the arrow and remove one side of the support.
(Refer to Fig. 3-2.)

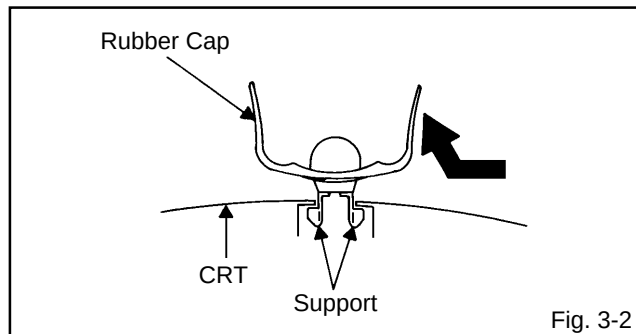


Fig. 3-2

3. After one side is removed, pull in the opposite direction to remove the other.

NOTE

Take care not to damage the Rubber Cap.

INSTALLATION

1. Clean the spot where the cap was located with a small amount of alcohol. (Refer to Fig. 3-3.)

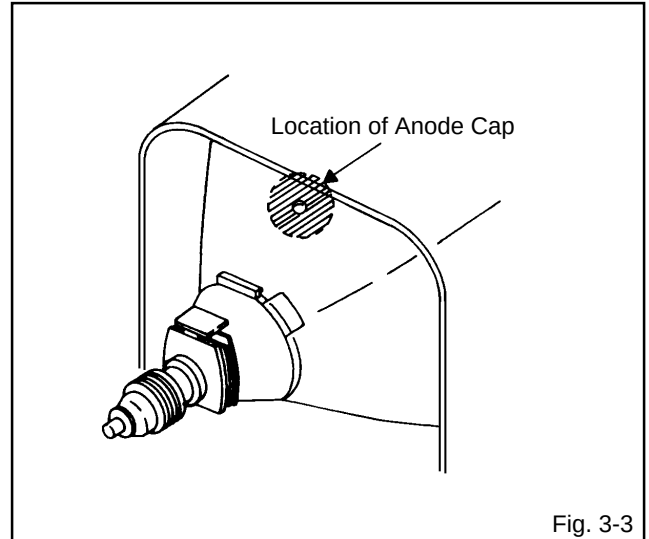


Fig. 3-3

NOTE

Confirm that there is no dirt, dust, etc. at the spot where the cap was located.

2. Arrange the wire of the Anode Cap and make sure the wire is not twisted.
3. Turn over the Rubber Cap. (Refer to Fig. 3-4.)

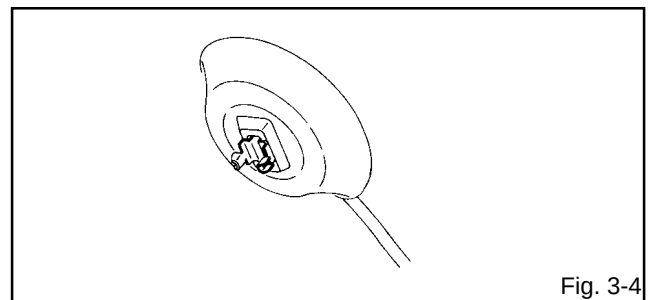


Fig. 3-4

4. Insert one end of the Anode Support into the anode button, then the other as shown in Fig. 3-5.

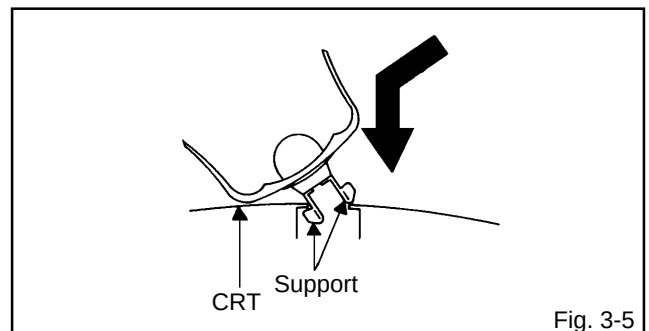


Fig. 3-5

5. Confirm that the Support is securely connected.
6. Put on the Rubber Cap without moving any parts.

DISASSEMBLY INSTRUCTIONS

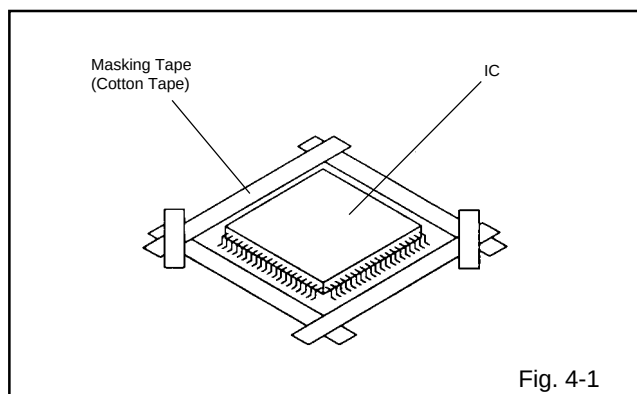
4. REMOVAL AND INSTALLATION OF FLAT PACKAGE IC

REMOVAL

1. Put the Masking Tape (cotton tape) around the Flat Package IC to protect other parts from any damage. **(Refer to Fig. 4-1.)**

NOTE

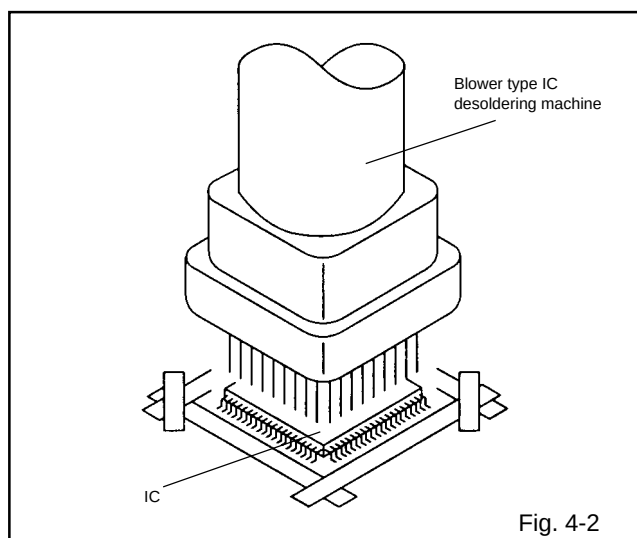
Masking is carried out on all the parts located within 10 mm distance from IC leads.



2. Heat the IC leads using a blower type IC desoldering machine. **(Refer to Fig. 4-2.)**

NOTE

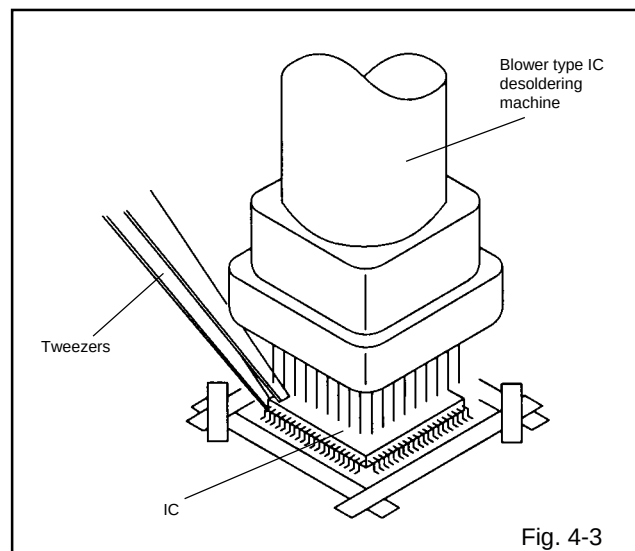
Do not add the rotating and the back and forth directions force on the IC, until IC can move back and forth easily after desoldering the IC leads completely.



3. When IC starts moving back and forth easily after desoldering completely, pickup the corner of the IC using a tweezers and remove the IC by moving with the IC desoldering machine. **(Refer to Fig. 4-3.)**

NOTE

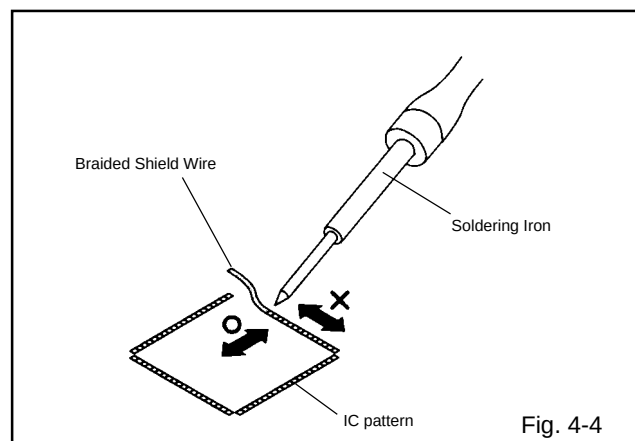
Some ICs on the PCB are affixed with glue, so be careful not to break or damage the foil of each IC leads or solder lands under the IC when removing it.



4. Peel off the Masking Tape.
5. Absorb the solder left on the pattern using the Braided Shield Wire. **(Refer to Fig. 4-4.)**

NOTE

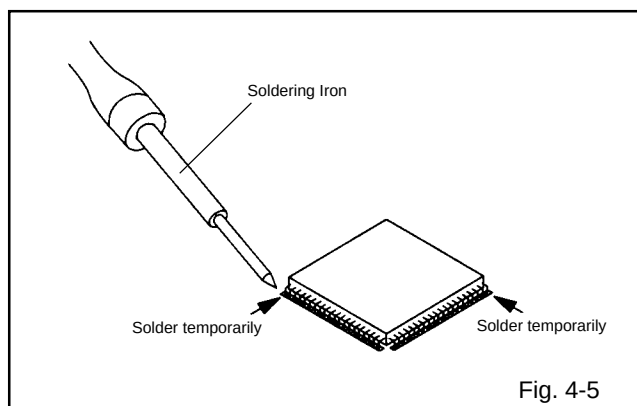
Do not move the Braided Shield Wire in the vertical direction towards the IC pattern.



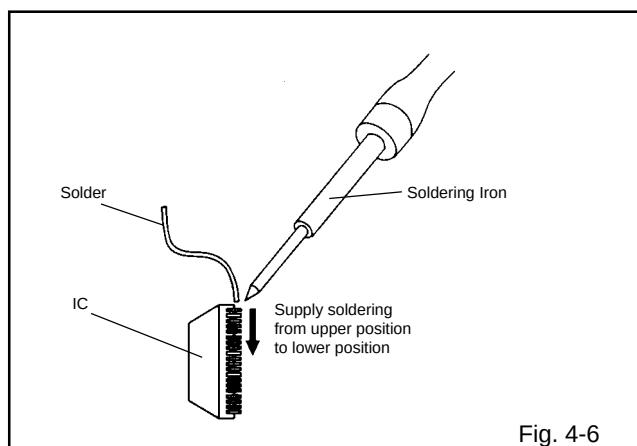
DISASSEMBLY INSTRUCTIONS

INSTALLATION

1. Take care of the polarity of new IC and then install the new IC fitting on the printed circuit pattern. Then solder each lead on the diagonal positions of IC temporarily. **(Refer to Fig. 4-5.)**



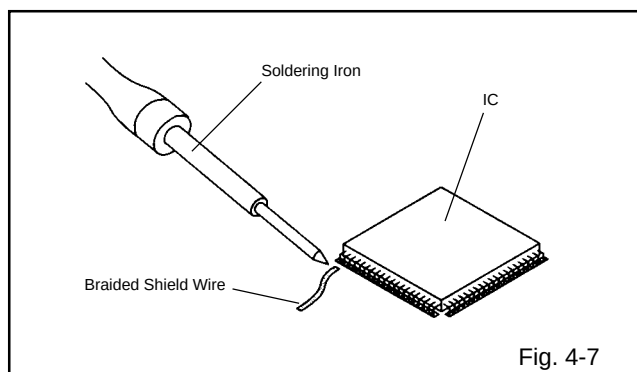
2. Supply the solder from the upper position of IC leads sliding to the lower position of the IC leads. **(Refer to Fig. 4-6.)**



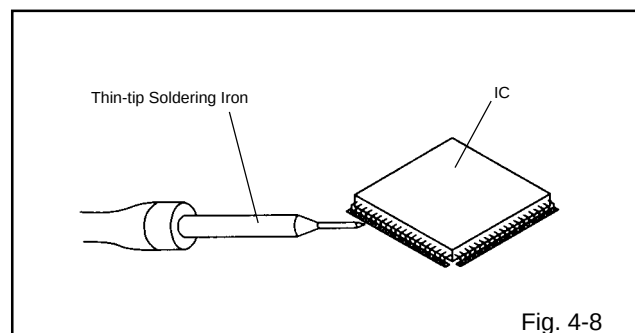
3. Absorb the solder left on the lead using the Braided Shield Wire. **(Refer to Fig. 4-7.)**

NOTE

Do not absorb the solder to excess.



4. When bridge-soldering between terminals and/or the soldering amount are not enough, resolder using a Thin-tip Soldering Iron. **(Refer to Fig. 4-8.)**



5. Finally, confirm the soldering status on four sides of the IC using a magnifying glass. Confirm that no abnormality is found on the soldering position and installation position of the parts around the IC. If some abnormality is found, correct by resoldering.

NOTE

When the IC leads are bent during soldering and/or repairing, do not repair the bending of leads. If the bending of leads are repaired, the pattern may be damaged. So, be always sure to replace the IC in this case.

KEY TO ABBREVIATIONS

A	A/C	: Audio/Control	H.SW	: Head Switch	
	ACC	: Automatic Color Control	Hz	: Hertz	
	AE	: Audio Erase	I	IC	: Integrated Circuit
	AFC	: Automatic Frequency Control		IF	: Intermediate Frequency
	AFT	: Automatic Fine Tuning		IND	: Indicator
	AFT DET	: Automatic Fine Tuning Detect		INV	: Inverter
	AGC	: Automatic Gain Control	K	KIL	: Killer
	AMP	: Amplifier	L	L	: Left
	ANT	: Antenna		LED	: Light Emitting Diode
	A.PB	: Audio Playback		LIMIT AMP	: Limiter Amplifier
	APC	: Automatic Phase Control		LM, LDM	: Loading Motor
	ASS'Y	: Assembly		LP	: Long Play
	AT	: All Time		L.P.F	: Low Pass Filter
	AUTO	: Automatic		LUMI.	: Luminance
	A/V	: Audio/Video	M	M	: Motor
B	BGP	: Burst Gate Pulse		MAX	: Maximum
	BOT	: Beginning of Tape		MINI	: Minimum
	BPF	: Bandpass Filter		MIX	: Mixer, mixing
	BRAKE SOL	: Brake Solenoid		MM	: Monostable Multivibrator
	BUFF	: Buffer		MOD	: Modulator, Modulation
	B/W	: Black and White		MPX	: Multiplexer, Multiplex
C	C	: Capacitance, Collector		MS SW	: Mecha State Switch
	CASE	: Cassette	N	NC	: Non Connection
	CAP	: Capstan		NR	: Noise Reduction
	CARR	: Carrier	O	OSC	: Oscillator
	CH	: Channel		OPE	: Operation
	CLK	: Clock	P	PB	: Playback
	CLOCK (SY-SE)	: Clock (Syscon to Servo)		PB CTL	: Playback Control
	COMB	: Combination, Comb Filter		PB-C	: Playback-Chrominance
	CONV	: Converter		PB-Y	: Playback-Luminance
	CPM	: Capstan Motor		PCB	: Printed Circuit Board
	CTL	: Control		P. CON	: Power Control
	CYL	: Cylinder		PD	: Phase Detector
	CYL-M	: Cylinder-Motor		PG	: Pulse Generator
	CYL SENS	: Cylinder-Sensor		P-P	: Peak-to Peak
D	DATA (SY-CE)	: Data (Syscon to Servo)	R	R	: Right
	dB	: Decibel		REC	: Recording
	DC	: Direct Current		REC-C	: Recording-Chrominance
	DD Unit	: Direct Drive Motor Unit		REC-Y	: Recording-Luminance
	DEMOD	: Demodulator		REEL BRK	: Reel Brake
	DET	: Detector		REEL S	: Reel Sensor
	DEV	: Deviation		REF	: Reference
E	E	: Emitter		REG	: Regulated, Regulator
	EF	: Emitter Follower		REW	: Rewind
	EMPH	: Emphasis		REV, RVS	: Reverse
	ENC	: Encoder		RF	: Radio Frequency
	ENV	: Envelope		RMC	: Remote Control
	EOT	: End of Tape		RY	: Relay
	EQ	: Equalizer	S	S. CLK	: Serial Clock
	EXT	: External		S. COM	: Sensor Common
F	F	: Fuse		S. DATA	: Serial Data
	FBC	: Feed Back Clamp		SEG	: Segment
	FE	: Full Erase		SEL	: Select, Selector
	FF	: Fast Forward, Flipflop		SENS	: Sensor
	FG	: Frequency Generator		SER	: Search Mode
	FL SW	: Front Loading Switch		SI	: Serial Input
	FM	: Frequency Modulation		SIF	: Sound Intermediate Frequency
	FSC	: Frequency Sub Carrier		SO	: Serial Output
	FWD	: Forward		SOL	: Solenoid
G	GEN	: Generator		SP	: Standard Play
	GND	: Ground		STB	: Serial Strobe
H	H.P.F	: High Pass Filter		SW	: Switch

KEY TO ABBREVIATIONS

S	SYNC	:	Synchronization
	SYNC SEP	:	Sync Separator, Separation
T	TR	:	Transistor
	TRAC	:	Tracking
	TRICK PB	:	Trick Playback
	TP	:	Test Point
U	UNREG	:	Unregulated
V	V	:	Volt
	VCO	:	Voltage Controlled Oscillator
	VIF	:	Video Intermediate Frequency
	VP	:	Vertical Pulse, Voltage Display
	V.PB	:	Video Playback
	VR	:	Variable Resistor
	V.REC	:	Video Recording
	VSF	:	Visual Search Fast Forward
	VSR	:	Visual Search Rewind
	VSS	:	Voltage Super Source
	V-SYNC	:	Vertical-Synchronization
	VT	:	Voltage Tuning
X	X'TAL	:	Crystal
Y	Y/C	:	Luminance/Chrominance

SERVICE MODE LIST

This unit provided with the following SERVICE MODES so you can repair, examine and adjust easily.

To enter SERVICE MODE, unplug AC cord till lost actual clock time. Then press and hold Vol (-) button of main unit and remocon key simultaneously.

The both pressing of set key and remote control key will not be possible if clock has been set. To reset clock, either unplug AC cord and allow at least 5 seconds before Power On.

Set Key	Remocon Key	Operations
VOL. (-) MIN	0	Releasing of V-CHIP PASSWORD.
VOL. (-) MIN	1	Initialization of the factory. NOTE: Do not use this for the normal servicing. If you set a factory initialization, the memories are reset such as the clock setting, the channel setting, the POWER ON total hours, and PLAY/REC total hours.
VOL. (-) MIN	2	Horizontal position adjustment of OSD. NOTE: Also can be adjusted by using the Adjustment MENU. Refer to the "ELECTRICAL ADJUSTMENT" (OSD HORIZONTAL).
VOL. (-) MIN	3	Adjust the PG SHIFTER automatically. Refer to the "ELECTRICAL ADJUSTMENT" (PG SHIFTER).
VOL. (-) MIN	4	Adjust the PG SHIFTER manually. Refer to the "ELECTRICAL ADJUSTMENT" (PG SHIFTER).
VOL. (-) MIN	5	Adjusting of the Tracking to the center position. NOTE: Also can be adjusted by pressing the ATR button for more than 2 seconds during PLAY.
VOL. (-) MIN	6	POWER ON total hours and PLAY/REC total hours are displayed on the screen. Refer to the "PREVENTIVE CHECKS AND SERVICE INTERVALS" (CONFIRMATION OF HOURS USED). Can be checked of the INITIAL DATA of MEMORY IC. Refer to the "WHEN REPLACING EEPROM (MEMORY) IC".
VOL. (-) MIN	8	Writing of EEPROM initial data. NOTE: Do not use this for the normal servicing.
VOL. (-) MIN	9	Display of the Adjustment MENU on the screen. Refer to the "ELECTRICAL ADJUSTMENT" (On-Screen Display Adjustment).

Method	Operations
Press the ATR button on the remote control for more than 2 seconds during PLAY.	Adjusting of the Tracking to the center position. Refer to the "MECHANICAL ADJUSTMENT" (GUIDE ROLLER) and "ELECTRICAL ADJUSTMENT" (PG SHIFTER).
Make the short circuit between the test point of SERVICE and the GND.	The BOT, EOT and the Reel sensor do not work and the deck can be operated without a cassette tape. Refer to the "PREPARATION FOR SERVICING"

PREVENTIVE CHECKS AND SERVICE INTERVALS

The following standard table depends on environmental conditions and usage.

Parts replacing time does not mean the life span for individual parts.

Also, long term storage or misuse may cause transformation and aging of rubber parts.

The following list means standard hours, so the checking hours depends on the conditions.

Time Parts Name	500 hours	1,000 hours	1,500 hours	2,000 hours	2,500 hours	Notes
Audio Control Head	■	■	■	●	●	Clean those parts in contact with the tape.
Full Erase Head (Recorder only)	■	■	■	●	●	
Capstan Belt		●	●	●	●	Clean the rubber, and parts which the rubber touches.
Pinch Roller	■	●	●	●	●	
Capstan DD Unit		●	●	●	●	
Loading Motor					●	
Tension Band		●	●	●	●	
T Brake Band		●	●	●	●	
Clutch Ass'y		●	●	●	●	
Idler Arm Ass'y		●	●	●	●	
Capstan Shaft	■	■	■	■	■	
Tape Running Guide Post	■	■	■	■	■	Replace when rolling becomes abnormal.
Cylinder Unit	■	●	●	●	●	Clean the Head

■ : Clean

● : Check it and if necessary, replace it.

CONFIRMATION OF HOURS USED

POWER ON total hours and PLAY/REC total hours can be checked on the screen.

Total hours are displayed in 16 system of notation.

NOTE: If you set a factory initialization, the total hours is reset to "0".

The confirmation of using hours will not be possible if clock has been set. To reset clock, either unplug AC cord and allow at least 5 seconds before Power On.

1. Set the VOLUME to minimum.
2. While holding down VOLUME button on front cabinet, press key 6 on remote control simultaneously.
3. After the confirmation of using hours, turn off the power.

INIT 00 83	Initial setting content of MEMORY IC.
POWER ON 0010	POWER ON total hours.
PLAY/REC 0003	PLAY/REC total hours.

(16 x 16 x 16 x thousands digit value) + (16 x 16 x hundreds digit value) + (16 x tens digit value) + (ones digit value)

PREVENTIVE CHECKS AND SERVICE INTERVALS

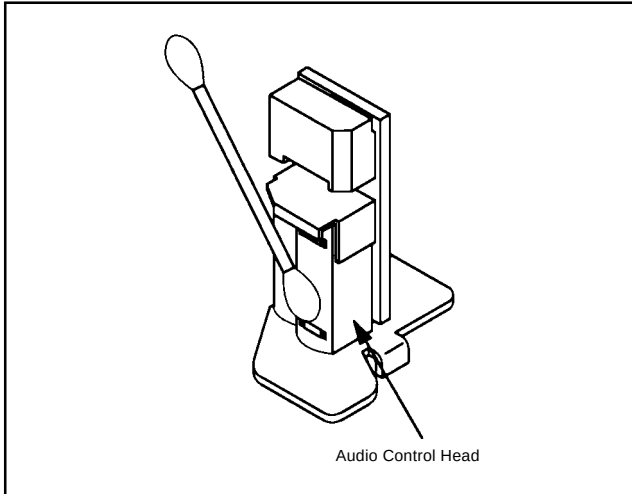
CLEANING

NOTE

After cleaning the heads with isopropyl alcohol, do not run a tape until the heads dry completely. If the heads are not completely dry and alcohol gets on the tape, damage may occur.

1. AUDIO CONTROL HEAD

Clean the Audio Control Head with the cotton stick soaked by alcohol. Clean the full erase head in the same manner. **(Refer to the figure below.)**



2. TAPE RUNNING SYSTEM

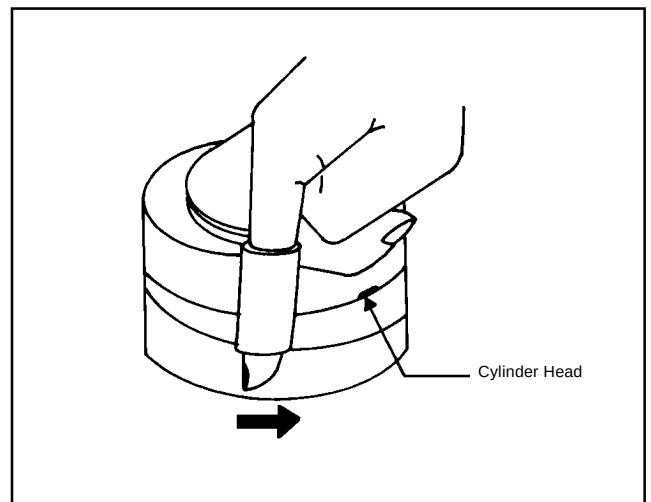
When cleaning the tape transport system, use the gauze moistened with isopropyl alcohol.

3. CYLINDER

Wrap a piece of chamois around your finger. Dip it in isopropyl alcohol. Hold it to the cylinder head softly. Turn the cylinder head counterclockwise to clean it (in the direction of the arrow). **(Refer to the figure below.)**

NOTE

Do not exert force against the cylinder head. Do not move the chamois upward or downward on the head. Use the chamois one by one.



WHEN REPLACING EEPROM (MEMORY) IC

If a service repair is undertaken where it has been required to change the MEMORY IC, the following steps should be taken to ensure correct data settings while making reference to TABLE 1.

NOTE: Initial Data setting will not be possible if clock has been set. To reset clock, either unplug AC cord and allow at least 5 seconds before Power On.

INI	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9	+A	+B	+C	+D	+E	+F
00	88	0A	62	63	43	14	34	09	51	38	30	66	00	40	00	10
10	B2	9A	92	93	00	00	00	15	08	00	A9	0F	94	3E	06	04
20	06	29	01	17	10	60	32	3A	DA	D7	10	15	20	25	26	27
30	28	29	2A	2C	2E	30	32	34	36	38	3A	3C	3E	40	41	42
40	43	44	45	46	47	48	49	4A	4B	4C	4D	4E	4F	50	51	52
50	53	54	55	56	57	58	59	5A	5B	5C	5D	5E	5F	60	61	62
60	63	64	66	69	6D	74	79	7C	7E	7F	---	---	---	---	---	---

Table 1

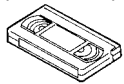
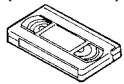
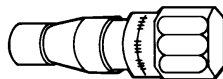
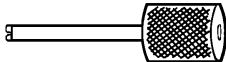
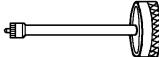
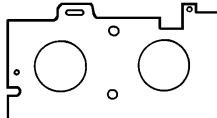
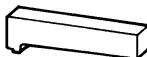
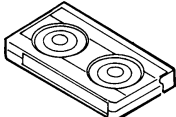
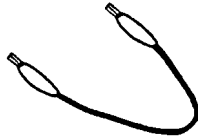
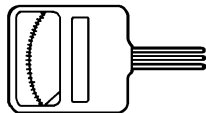
1. Enter DATA SET mode by setting VOLUME to minimum.
2. While holding down VOLUME button on front cabinet, press key 6 on remote control simultaneously. ADDRESS and DATA should appear as FIG 1.

	ADDRESS	DATA
INIT	00	83
POWER ON	0010	
PLAY/REC	0003	

Fig. 1

3. ADDRESS is now selected and should "blink". Using the PLAY or STOP button on the remote, step through the ADDRESS until required ADDRESS to be changed is reached.
4. Press ENTER to select DATA. When DATA is selected, it will "blink".
5. Again, step through the DATA using PLAY or STOP until required DATA value has been selected.
6. Pressing ENTER will take you back to ADDRESS for further selection if necessary.
7. Repeat steps 3 to 6 until all data has been checked.
8. When satisfied correct DATA has been entered, turn POWER off (return to STANDBY MODE) to finish DATA input. The unit will now have the correct DATA for the new MEMORY IC.

SERVICING FIXTURES AND TOOLS

(For 2 heads model) VHS Alignment Tape JG001 (VN ₂ S-LI6 ³) JG001A (VN ₂ S-CO1 ³) JG001Q (VN ₂ S-LI6 ³ H) JG001T (VN ₂ S-X6 ³) 	(For 4 heads model) VHS Alignment Tape JG001B (VN ₁ S-LI6 ³) JG001I (VN ₁ S-CO1 ³) JG001P (VN ₁ S-LI6 ³ H) JG001S (VN ₁ S-X6 ³) 	JG002B Adapter JG002E Dial Torque Gauge (10~90gf•cm) JG002F (60~600gf•cm) 	JG005 Post Adjustment Screwdriver Part No. SV-TG0-030-000 (small) 
JG153 X Value Adjustment Screwdriver 	JG022 Master Plane 	JG024A Reel Disk Height Adjustment Jig 	JG100A Torque Tape (VHT-063) 
JG154 Cable 	Tentelometer 		

Ref. No.	Part No.	Parts Name	Remarks
JG001	APJG001000	VHS Alignment Tape (For 2 heads model)	Monoscope, 6KHz
JG001A	APJG001A00	VHS Alignment Tape (For 2 heads model)	Color Bar, 1KHz
JG001Q	APJG001Q00	VHS Alignment Tape (For 2 heads model)	Hi-Fi Audio
JG001T	APJG001T00	VHS Alignment Tape (For 2 heads model)	X Value Adjustment
JG001B	APJG001B00	VHS Alignment Tape (For 4 heads model)	Monoscope, 6KHz
JG001I	APJG001I00	VHS Alignment Tape (For 4 heads model)	Color Bar, 1KHz
JG001P	APJG001P00	VHS Alignment Tape (For 4 heads model)	Hi-Fi Audio
JG001S	APJG001S00	VHS Alignment Tape (For 4 heads model)	X Value Adjustment
JG002B	APJG002B00	Adapter	VSR Torque, Brake Torque (S Reel/T Reel Ass'y)
JG002E	APJG002E00	Dial Torque Gauge (10~90gf•cm)	Brake Torque (T Reel Ass'y)
JG002F	APJG002F00	Dial Torque Gauge (60~600gf•cm)	VSR Torque, Brake Torque (S Reel)
JG005	APJG005000	Post Adjustment Screwdriver	Guide Roller Adjustment
JG153	APJG153000	X Value Adjustment Screwdriver	X Value Adjustment
JG022	APJG022000	Master Plane	Reel Disk Height Adjustment
JG024A	APJG024A00	Reel Disk Height Adjustment Jig	Reel Disk Height Adjustment
JG100A	APJG100A00	Torque Tape (VHT-063)	Playback Torque, Back Tension Torque During Playback
JG154	APJG154000	Cable	Used to connect the test point of SERVICE and GROUND

PREPARATION FOR SERVICING

How to use the Servicing Fixture

1. Unplug the connector CP757 and CP351, then remove the TV/VCR Block from the set.
2. Remove the Operation PCB from the set, then connect it with the Syscon PCB.
If necessary, connect CP351. (Front A/V Jack Input Terminal)
3. Short circuit between **TP1001** and **Ground** with the cable JG154.
(The BOT, EOT and the Reel Sensor do not work and the deck can be operated without a cassette tape.)
4. In case of using a cassette tape, press the STOP/EJECT button to insert or eject a cassette tape.
Turn on the power and re-check the cable before checking the trouble points.

MECHANICAL ADJUSTMENTS

1. CONFIRMATION AND ADJUSTMENT

Read the following NOTES before starting work.

- Place an object which weighs between 450g~500g on the Cassette Tape to keep it steady when you want to make the tape run without the Cassette Holder. (Do not place an object which weighs over 500g.)

1-1: CONFIRMATION AND ADJUSTMENT OF REEL DISK HEIGHT

- Turn on the power and set to the STOP mode.
- Set the master plane (**JG022**) and reel disk height adjustment jig (**JG024A**) on the mechanism framework, taking care not to scratch the drum, as shown in **Fig. 1-1-A**.
- While turning the reel and confirm the following points. Check if the surface "A" of reel disk is lower than the surface "B" of reel disk height adjustment jig (**JG024A**) and is higher than the surface "C". If it is not passed, place the height adjustment washers and adjust to $10(+2, -0)\text{mm}$.
- Adjust the other reel in the same way.

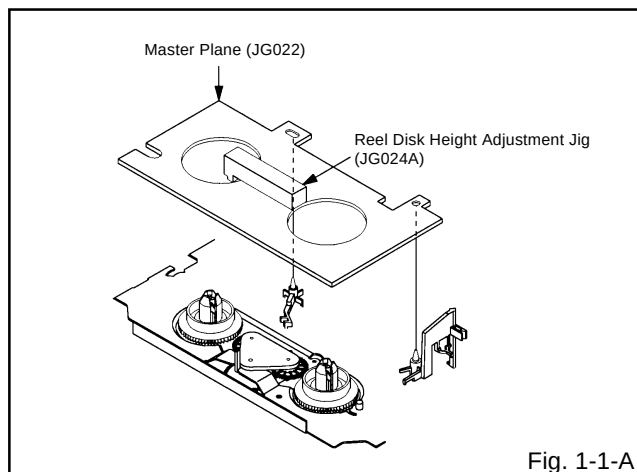


Fig. 1-1-A

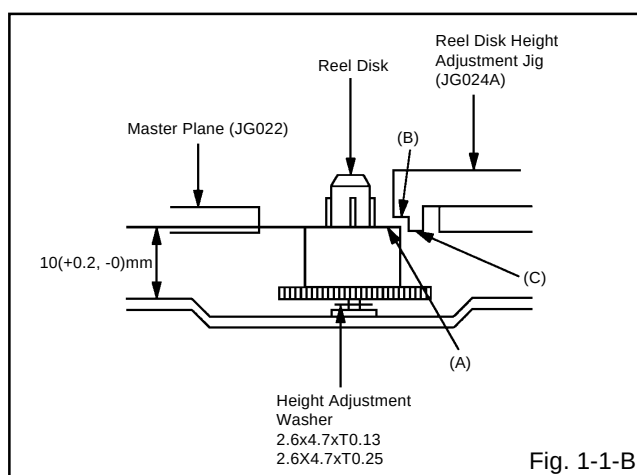


Fig. 1-1-B

1-2: CONFIRMATION AND ADJUSTMENT OF TENSION POST POSITION

- Set to the PLAY mode.
- Adjust the adjusting section for the Tension Arm position so that the Tension Arm top is within the standard line of Main Chassis.
- While turning the S Reel clockwise, confirm that the edge of the Tension Arm is located in the position described above.

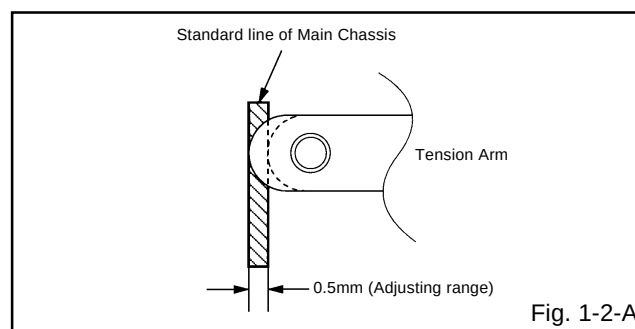


Fig. 1-2-A

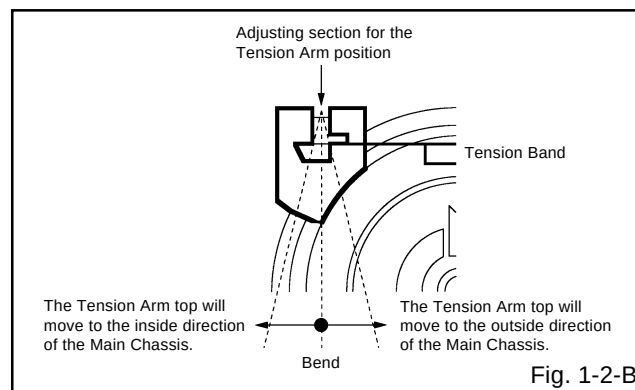


Fig. 1-2-B

1-3: CONFIRMATION OF PLAYBACK TORQUE AND BACK TENSION TORQUE DURING PLAYBACK

- Load a video tape (T-120) recorded in standard speed mode. Set the unit to the PLAY mode.
- Install the tentelometer as shown in **Fig. 1-3**. Confirm that the meter indicates $20 \pm 2\text{gf}$ in the beginning of playback.

• USING A CASSETTE TYPE TORQUE TAPE (**JG100A**)

- After confirmation and adjustment of Tension Post position (Refer to item 1-2), load the cassette type torque tape (**JG100A**) and set to the PLAY mode.
- Confirm that the right meter of the torque tape indicates $50\sim90\text{gf}\cdot\text{cm}$ during playback in SP mode.
- Confirm that the left meter of the torque tape indicates $25\sim40\text{gf}\cdot\text{cm}$ during playback in SP mode.

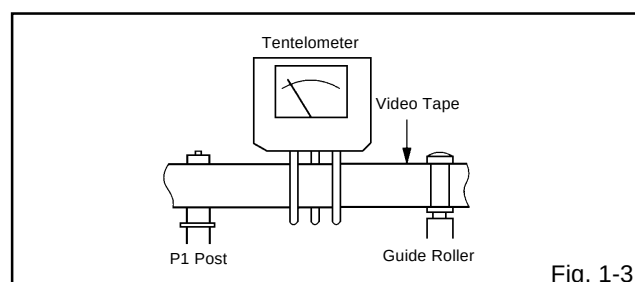


Fig. 1-3

MECHANICAL ADJUSTMENTS

1-4: CONFIRMATION OF VSR TORQUE

1. Install the Torque Gauge (**JG002F**) and Adapter (**JG002B**) on the S Reel. Set to the Picture Search (Rewind) mode. (Refer to Fig.1-4-B)
2. Then, confirm that it indicates 120~180gf•cm.

NOTE

Install the Torque Gauge on the reel disk firmly. Press the REW button to turn the reel disk.

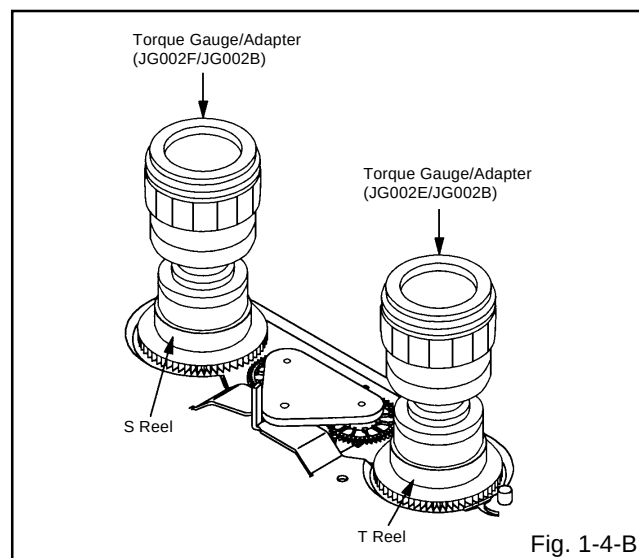
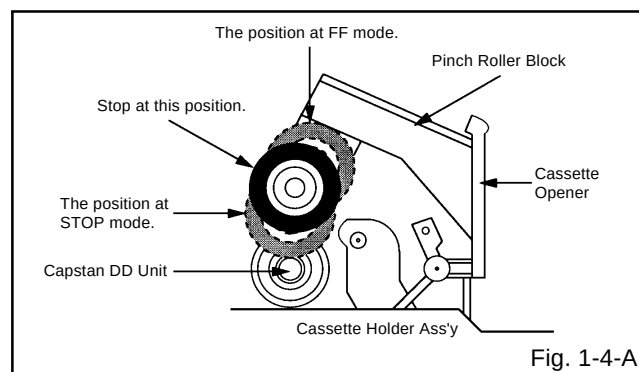
1-5: CONFIRMATION OF REEL BRAKE TORQUE

(S Reel Brake) (Refer to Fig. 1-4-B)

1. Once set to the Fast Forward mode then set to the Stop mode. While, unplug the AC cord when the Pinch Roller Block is on the position of Fig. 1-4-A.
2. Move the Idler Ass'y from the S Reel.
3. Install the Torque Gauge (**JG002F**) and Adapter (**JG002B**) on the S Reel. Turn the Torque Gauge (**JG002F**) clockwise.
4. Then, confirm that it indicates 60~100gf•cm.

(T Reel Brake) (Refer to Fig. 1-4-B)

1. Once set to the Fast Forward mode then set to the Stop mode. While, unplug the AC cord when the Pinch Roller Block is on the position of Fig. 1-4-A.
2. Move the Idler Ass'y from the T Reel.
3. Install the Torque Gauge (**JG002E**) and Adapter (**JG002B**) on the T reel. Turn the Torque Gauge (**JG002E**) counterclockwise.
4. Then, confirm that it indicates 30~50gf•cm.



NOTE

If the torque is out of the range, replace the following parts.

Check item	Replacement Part
1-4	Idler Ass'y/Clutch Ass'y
1-5	S Reel side: S Reel/Tension Band/Tension Connect/Tension Arm Ass'y T Reel side: T Reel/T Brake Band//T Brake Spring/T Brake Arm

2. CONFIRMATION AND ADJUSTMENT OF TAPE RUNNING MECHANISM

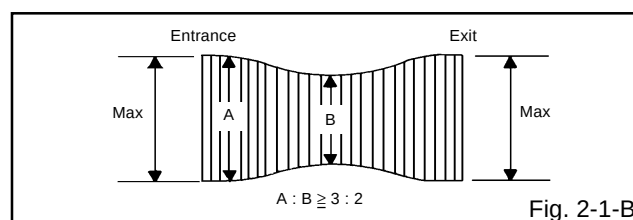
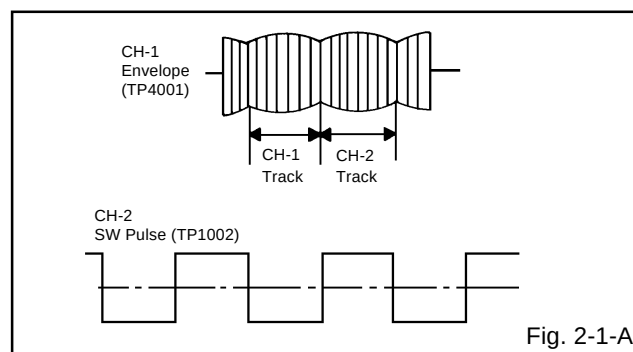
Tape Running Mechanism is adjusted precisely at the factory. Adjustment is not necessary as usual. When you replace the parts of the tape running mechanism because of long term usage or failure, the confirmation and adjustment are necessary.

2-1: GUIDE ROLLER

1. Playback the VHS Alignment Tape (**JG001** or **JG001B**). (Refer to **SERVICING FIXTURE AND TOOLS**)
2. Connect CH-1 of the oscilloscope to **TP4001 (Envelope)** and CH-2 to **TP1002 (SW Pulse)**.
3. Press and hold the Tracking-Auto button on the remote control more than 2 seconds to set tracking to center.
4. Trigger with SW Pulse and observe the envelope. (Refer to Fig. 2-1-A)
5. When observing the envelope, adjust the Adjusting Driver (**JG005**) slightly until the envelope will be flat. Even if you press the Tracking Button, adjust so that flatness is not moved so much.
6. Adjust so that the A : B ratio is better than 3 : 2 as shown in Fig. 2-1-B, even if you press the Tracking Button to move the envelope (The envelope waveform will begin to decrease when you press the Tracking Button).
7. Adjust the PG shifter during playback. (Refer to the **ELECTRICAL ADJUSTMENTS**)

NOTE

After adjustment, confirm and adjust A/C head. (Refer to item 2-2)

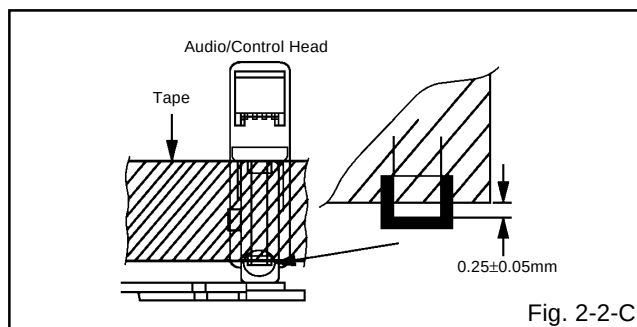
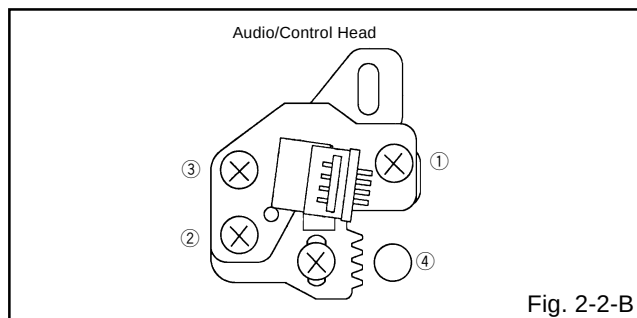
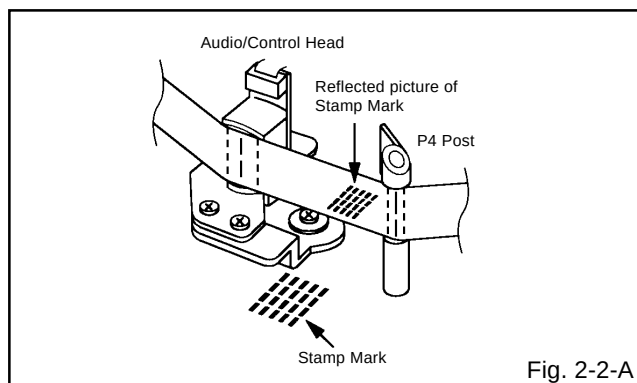


MECHANICAL ADJUSTMENTS

2-2: CONFIRMATION AND ADJUSTMENT OF AUDIO/CONTROL HEAD

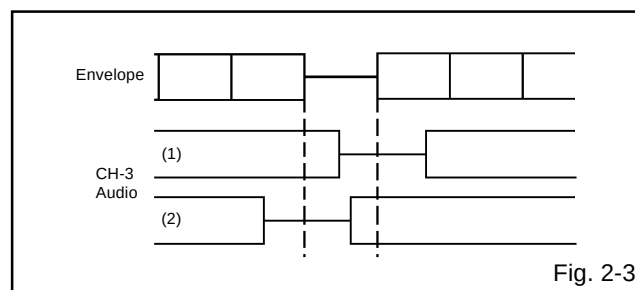
When the Tape Running Mechanism does not work well, adjust the following items.

1. Playback the VHS Alignment Tape (**JG001 or JG001B**).
(Refer to **SERVICING FIXTURE AND TOOLS**)
2. Confirm that the reflected picture of stamp mark is appeared on the tape prior to P4 Post as shown in **Fig. 2-2-A**.
 - a) When the reflected picture is distorted, turn the screw ① clockwise until the distortion is disappeared.
 - b) When the reflected picture is not distorted, turn the screw ① counterclockwise until little distortion is appeared, then adjust the a).
3. Turn the screw ② to set the audio level to maximum.
4. Confirm that the bottom of the Audio/ Control Head and the bottom of the tape is shown in **Fig. 2-2-C**.
 - c) When the height is not correct, turn the screw ③ to adjust the height. Then, adjust the 1~3 again.



2-3: TAPE RUNNING ADJUSTMENT (X VALUE ADJUSTMENT)

1. Confirm and adjust the height of the Reel Disk.
(Refer to item 1-1)
2. Confirm and adjust the position of the Tension Post.
(Refer to item 1-2)
3. Adjust the Guide Roller. (Refer to item 2-1)
4. Confirm and adjust the Audio/Control Head.
(Refer to item 2-2)
5. Connect CH-1 of the oscilloscope to **TP4001**, CH-2 to **TP1002** and CH-3 to **HOT side of Audio Out Jack**.
6. Playback the VHS Alignment Tape (**JG001S or JG001T**). (Refer to **SERVICING FIXTURE AND TOOLS**)
7. Press and hold the Tracking-Auto button on the remote control more than 2 seconds to set tracking to center.
8. Set the X Value adjustment driver (**JG153**) to the ④ of **Fig. 2-2-B**. Adjust X value so that the envelope waveform output becomes maximum. Check if the relation between Audio and Envelope waveform becomes (1) or (2) of **Fig. 2-3**.

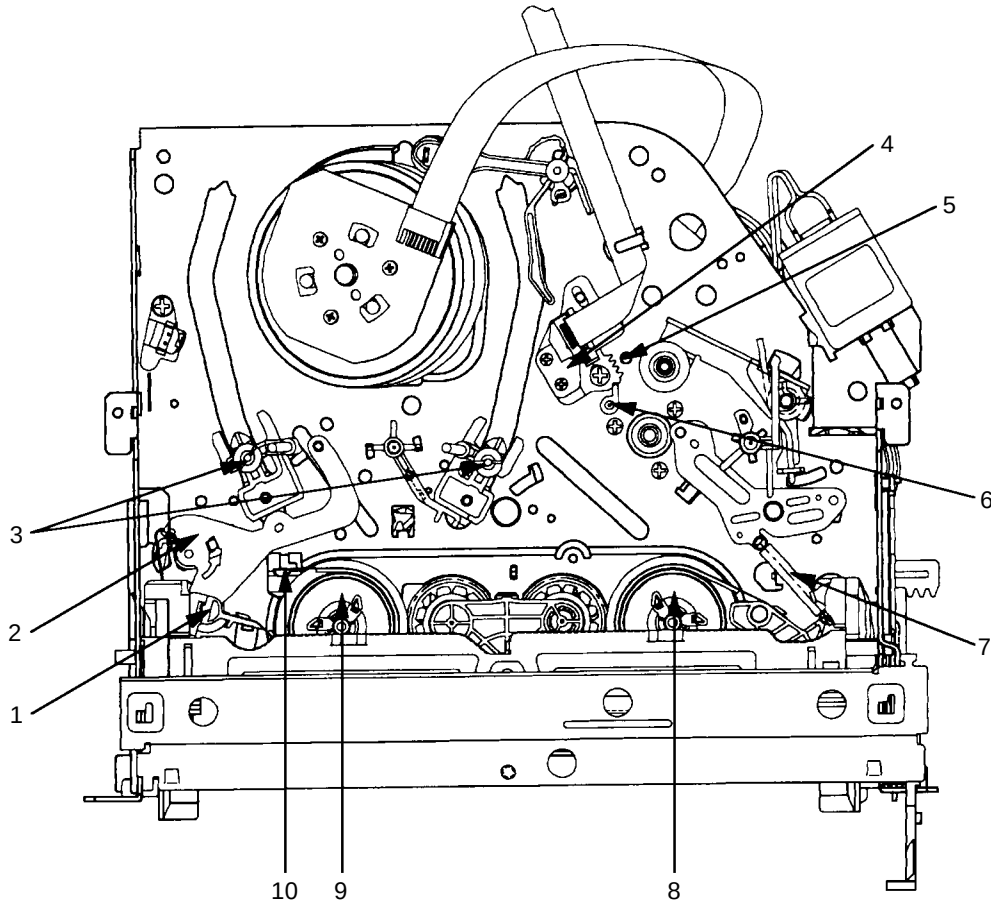


2-4: CONFIRM HI-FI AUDIO (Hi-Fi model only)

1. Connect CH-1 of the oscilloscope to **TP1002** and CH-2 to the **Hi-Fi Audio Out Jack**.
2. Playback the VHS Alignment Tape (**JG001P or JG001Q**).
(Refer to **SERVICING FIXTURE AND TOOLS**)
3. Press and hold the Tracking-Auto button on the remote control more than 2 seconds to set tracking to center.
4. Press the Tracking Up button and count number of steps which the audio output is changed from Hi-Fi (10KHz) to MONO (6KHz).
5. Press and hold the Tracking-Auto button on the remote control more than 2 seconds to set tracking to center.
6. Press the Tracking Down button and count number of steps which the audio output is changed from Hi-Fi (10KHz) to MONO (6KHz).
7. If the difference are more than 3 steps, set the X Value adjustment driver (**JG153**) to ④ of **Fig. 2-2-B**. Change the X Value and adjust it so that the value becomes within 2 steps.

MECHANICAL ADJUSTMENTS

3. MECHANISM ADJUSTMENT PARTS LOCATION GUIDE



- | | |
|-----------------------------------|--|
| 1. Tension Connect | 6. P4 Post |
| 2. Tension Arm | 7. T Brake Spring |
| 3. Guide Roller | 8. T Reel |
| 4. Audio/Control Head | 9. S Reel |
| 5. X value adjustment driver hole | 10. Adjusting section for the Tension Arm position |

ELECTRICAL ADJUSTMENTS

1. BEFORE MAKING ELECTRICAL ADJUSTMENTS

Read and perform these adjustments when repairing the circuits or replacing electrical parts or PCB assemblies.

CAUTION

- Use an isolation transformer when performing any service on this chassis.
- Before removing the anode cap, discharge electricity because it contains high voltage.
- When removing a PCB or related component, after unfastening or changing a wire, be sure to put the wire back in its original position.
Inferior silicon grease can damage IC's and transistors.
- When replacing IC's and transistors, use only specified silicon grease (YG6260M).
Remove all old silicon before applying new silicon.

On-Screen Display Adjustment

1. Unplug the AC plug for more than 5 seconds to set the clock to the non-setting state. Then, set the volume level to minimum.
2. Press the VOL. DOWN button on the set and the Channel button **(9)** on the remote control simultaneously to appear the adjustment mode on the screen as shown in **Fig. 1-1**.

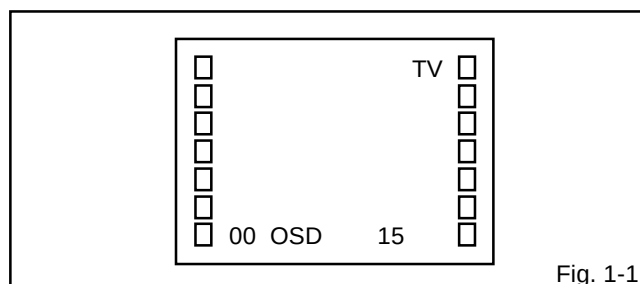


Fig. 1-1

3. Use the Channel UP/DOWN button or Channel button **(0-9)** on the remote control to select the options shown in **Fig. 1-2**.
4. Press the MENU button on the remote control to end the adjustments.

NO.	FUNCTION	NO.	FUNCTION
00	OSD H	13	BRIGHTNESS
01	CUT OFF	14	CONTRAST
02	RF AGC DELAY	15	COLOR
03	VIF VCO	16	TINT
04	H VCO	17	SHARPNESS
05	H PHASE	18	FM LEVEL
06	V SIZE	19	LEVEL
07	V SHIFT	20	SEPARATION 1
08	R DRIVE	21	SEPARATION 2
09	B DRIVE	22	TEST MONO
10	R CUT OFF	23	TEST STEREO
11	G CUT OFF	24	X-RAY TEST
12	B CUT OFF		

Fig. 1-2

2. BASIC ADJUSTMENTS (VCR SECTION)

2-1: PG SHIFTER

1. Connect CH-1 on the oscilloscope to **TP1002** and CH-2 to **pin 4 of CP1003**.
2. Playback the alignment tape. **(JG001A)**
3. Press and hold the Tracking-Auto button on the remote control more than 2 seconds to set tracking to center.
4. Press the VOL. DOWN button on the set and the channel button **(3)** on the remote control simultaneously until the indicator REC disappears. If the indicator REC disappears, adjustment is completed.

(If the above adjustments doesn't work well:)

5. Press the VOL. DOWN button on the set and the channel button **(3)** on the remote control simultaneously until the indicator REC disappears.
6. When the REC indicator is blinking, press both VOL. DOWN button on the set and the channel button **(4)** on the remote control simultaneously and adjust the Tracking +/- button until the arising to the down of Head Switching Pulse becomes $6.5 \pm 0.5H$.
(Refer to Fig. 2-1-A, B)
7. Press the Tracking Auto button.

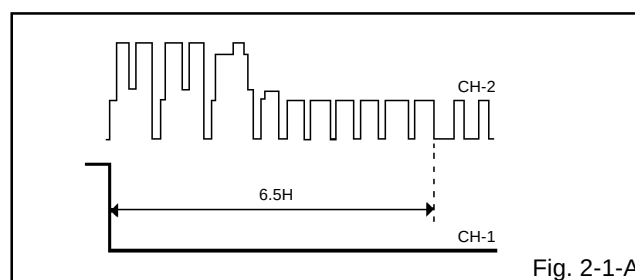


Fig. 2-1-A

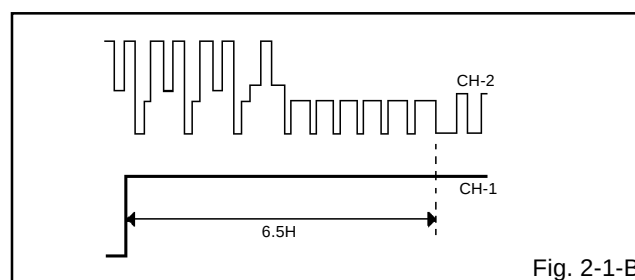


Fig. 2-1-B

2-2: VCO FREERUN

1. Place the set with Aging Test for more than 10 minutes.
2. Receive the VHF HIGH.
3. Disconnect the Antenna while receiving the VHF HIGH and set to the Noise screen.
4. Once turn off the Power and turn on the Power again.
5. Approx. 3 seconds later, input the Antenna again.
6. Connect the digital voltmeter between the **pin 5 of CP351** and the **pin 1 (GND) of CP351**.
7. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(03)** on the remote control to select "VIF VCO".
8. Press the VOL. UP/DOWN button on the remote control until the digital voltmeter is 2.5V.
9. After the 2.5V adjustment, countdown the VIF VCO step No. by 1 step with the VOL. DOWN button.

ELECTRICAL ADJUSTMENTS

2-3: RF AGC DELAY

1. Receive the VHF HIGH (63dB).
2. Connect the digital voltmeter between the **pin 5 of CP351** and the **pin 1 (GND) of CP351**.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(02)** on the remote control to select "RF AGC DELAY".
4. Press the VOL. UP/DOWN button on the remote control until the digital voltmeter is $2.9V \pm 0.05V$.

(TV SECTION)

2-4: CONSTANT VOLTAGE

1. Connect the digital voltmeter to the **TP601**.
2. Set condition is AV MODE without signal.
3. Using the remote control, set the brightness and contrast to normal position.
4. Adjust the **VR502** until the digital voltmeter is $135 \pm 0.5V$.

2-5: CUT OFF

1. Adjust the unit to the following settings.
R CUT OFF=128, G CUT OFF=128, B CUT OFF=128,
BRIGHTNESS=128, CONTRAST=100
2. Place the set with Aging Test for more than 15 minutes.
3. Set condition is AV MODE without signal.
4. Using the remote control, set the brightness and contrast to normal position.
5. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(01)** on the remote control to select "CUT OFF".
6. Adjust the **Screen Volume** until a dim raster is obtained.

2-6: WHITE BALANCE

NOTE: Adjust after performing CUT OFF adjustment.

1. Place the set with Aging Test for more than 15 minutes.
2. Receive the color bar pattern.
3. Using the remote control, set the brightness and contrast to normal position.
4. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(10)** on the remote control to select "R CUT OFF".
5. Using the VOL. UP/DOWN button on the remote control, adjust the R CUT OFF.
6. Press the CH. UP/DOWN button on the remote control to select the "R DRIVE", "B DRIVE", "G CUT OFF" or "B CUT OFF".
7. Using the VOL. UP/DOWN button on the remote control, adjust the R DRIVE, B DRIVE, G CUT OFF or B CUT OFF.
8. Perform the above adjustments 6 and 7 until the white color is looked like a white.

2-7: FOCUS

1. Receive the monoscope pattern.
2. Using the remote control, set the brightness and contrast to normal position.
3. Turn the Focus Volume fully counterclockwise once.
4. Adjust the **Focus Volume** until picture is distinct.

2-8: HORIZONTAL PHASE

1. Receive the center cross signal from the Pattern Generator.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(05)** on the remote control to select "H PHASE".
4. Press the VOL. UP/DOWN button on the remote control until the right and left screen size of the vertical line becomes the same.

2-9: VERTICAL SHIFT

1. Receive the center cross signal from the Pattern Generator.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(07)** on the remote control to select "V SHIFT".
4. Check if the step No. V. SHIFT is "3".
5. Adjust the **VR401** until the horizontal line becomes fit to the notch of the shadow mask.

2-10: VERTICAL SIZE

1. Receive the cross hatch signal from the Pattern Generator.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(06)** on the remote control to select "V SIZE".
4. Press the VOL. UP/DOWN button on the remote control until the SHIFT quantity of the OVER SCAN on upside and downside becomes minimum.

2-11: SUB BRIGHTNESS

1. Receive the monoscope pattern. (RF Input)
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(13)** on the remote control to select "BRIGHTNESS".
4. Press the VOL. UP/DOWN button on the remote control until the white 10% is starting to be visible
5. Receive the monoscope pattern. (Audio Video Input)
6. Press the INPUT SELECT button on the remote control to set to the AV mode. Then perform the above adjustments 2-4.

ELECTRICAL ADJUSTMENTS

2-12: SUB CONTRAST MANUAL

1. Receive the color bar pattern. (RF Input)
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(14)** on the remote control to select "CONTRAST".
4. Press the VOL. UP/DOWN button on the remote control until the contrast STEP No. becomes "100".
5. Receive the color bar pattern. (Audio Video Input)
6. Press the AV button on the remote control to set to the AV mode. Then perform the above adjustments 2~4.

2-13: SUB TINT

1. Receive the color bar pattern. (RF Input)
2. Connect the oscilloscope to **TP801**.
3. Using the remote control, set the brightness, contrast, color and tint to normal position.
4. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(16)** on the remote control to select "TINT".
5. Press the VOL. UP/DOWN button on the remote control until the section "A" becomes a straight line. **(Refer to Fig. 2-2)**
6. Receive the color bar pattern. (Audio Video Input)
7. Press the INPUT SELECT button on the remote control to set to the AV mode. Then perform the above adjustments 2~5.

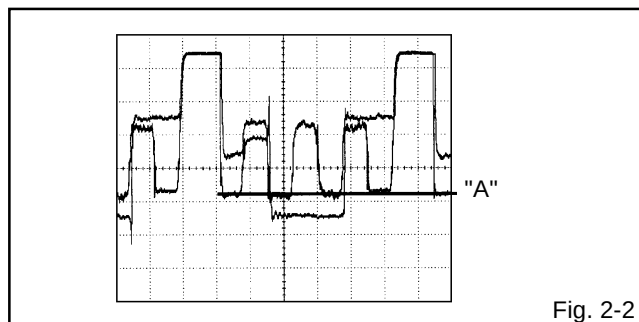


Fig. 2-2

2-14: SUB COLOR

1. Receive the color bar pattern. (RF Input)
2. Connect the oscilloscope to **TP803**.
3. Using the remote control, set the brightness, contrast, color and tint to normal position.
4. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(15)** on the remote control to select "COLOR".
5. Adjust the VOLTS RANGE VARIABLE knob of the oscilloscope until the range between white 100% and 0% is set to 4 scales on the screen of the oscilloscope.
6. Press the VOL. UP/DOWN button on the remote control until the red color level is adjusted to $110 \pm 10\%$ of the white level. **(Refer to Fig. 2-3)**
7. Receive the color bar pattern. (Audio Video Input)
8. Press the INPUT SELECT button on the remote control to set to the AV mode. Then perform the above adjustments 2~6.

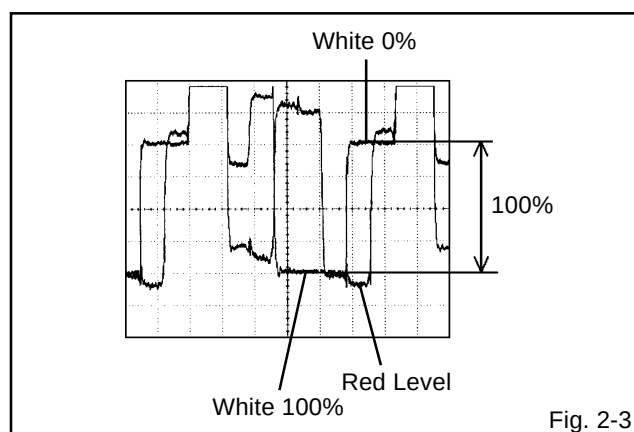


Fig. 2-3

2-15: OSD HORIZONTAL

1. Activate the adjustment mode display of **Fig. 1-1**.
2. Press the VOL. UP/DOWN button on the remote control until the difference of A and B becomes minimum. **(Refer to Fig. 2-4)**

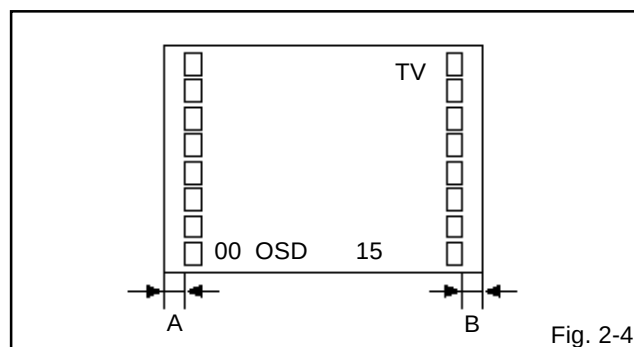


Fig. 2-4

2-16: SUB SHARPNESS

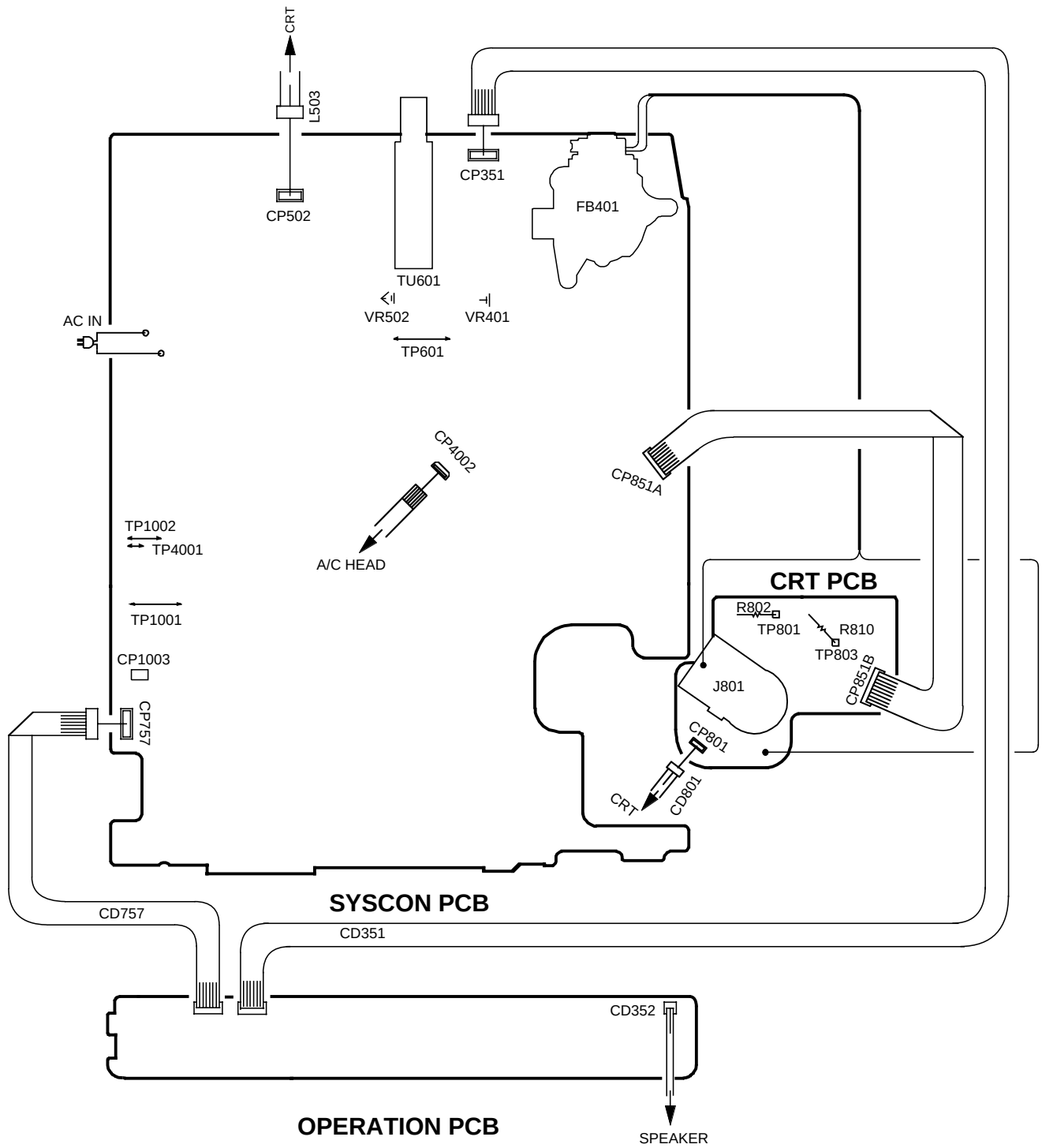
1. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(17)** on the remote control to select "SHARPNESS".
2. Check if the step No. of SHARPNESS is "40".
3. Press the AV button on the remote control to set to the AV mode. Then perform the above adjustments 1, 2.

2-17: H VCO

1. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(04)** on the remote control to select "H VCO".
2. Check if the step No. of H VCO is "4".

ELECTRICAL ADJUSTMENTS

3. ELECTRICAL ADJUSTMENT PARTS LOCATION GUIDE (WIRING CONNECTION)



ELECTRICAL ADJUSTMENTS

4. PURITY AND CONVERGENCE ADJUSTMENTS

NOTE

1. Turn the unit on and let it warm up for at least 30 minutes before performing the following adjustments.
2. Place the CRT surface facing east or west to reduce the terrestrial magnetism.
3. Turn ON the unit and demagnetize with a Degauss Coil.

4-1: STATIC CONVERGENCE (ROUGH ADJUSTMENT)

1. Tighten the screw for the magnet. Refer to the adjusted CRT for the position. **(Refer to Fig. 4-1)**
If the deflection yoke and magnet are in one body, untighten the screw for the body.
2. Receive the green raster pattern from the color bar generator.
3. Slide the deflection yoke until it touches the funnel side of the CRT.
4. Adjust center of screen to green, with red and blue on the sides, using the pair of purity magnets.
5. Switch the color bar generator from the green raster pattern to the crosshatch pattern.
6. Combine red and blue of the 3 color crosshatch pattern on the center of the screen by adjusting the pair of 4 pole magnets.
7. Combine red/blue (magenta) and green by adjusting the pair of 6 pole magnets.
8. Adjust the crosshatch pattern to change to white by repeating steps 6 and 7.

4-2: PURITY

NOTE

Adjust after performing adjustments in section 4-1.

1. Receive the green raster pattern from color bar generator.
2. Adjust the pair of purity magnets to center the color on the screen.
Adjust the pair of purity magnets so the color at the ends are equally wide.
3. Move the deflection yoke backward (to neck side) slowly, and stop it at the position when the whole screen is green.
4. Confirm red and blue colors.
5. Adjust the slant of the deflection yoke while watching the screen, then tighten the fixing screw.

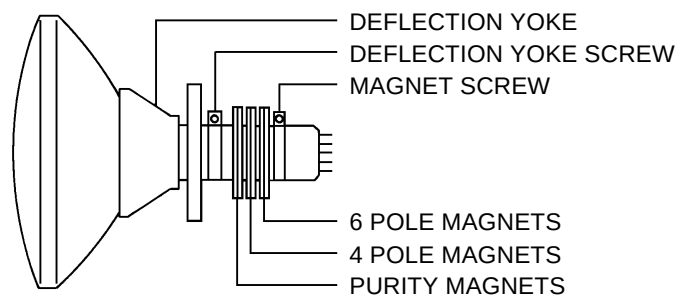


Fig. 4-1

4-3: STATIC CONVERGENCE

NOTE

Adjust after performing adjustments in section 4-2.

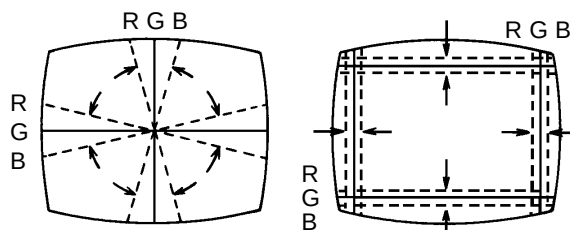
1. Receive the crosshatch pattern from the color bar generator.
2. Combine red and blue of the 3 color crosshatch pattern on the center of the screen by adjusting the pair of 4 pole magnets.
3. Combine red/blue (magenta) and green by adjusting the pair of 6 pole magnets.

4-4: DYNAMIC CONVERGENCE

NOTE

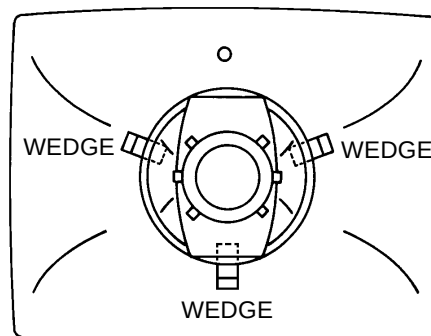
Adjust after performing adjustments in section 4-3.

1. Adjust the differences around the screen by moving the deflection yoke upward/downward and right/left. **(Refer to Fig. 4-2-a)**
2. Insert three wedges between the deflection yoke and CRT funnel to fix the deflection yoke. **(Refer to Fig. 4-2-b)**



UPWARD/DOWNWARD SLANT RIGHT/LEFT SLANT

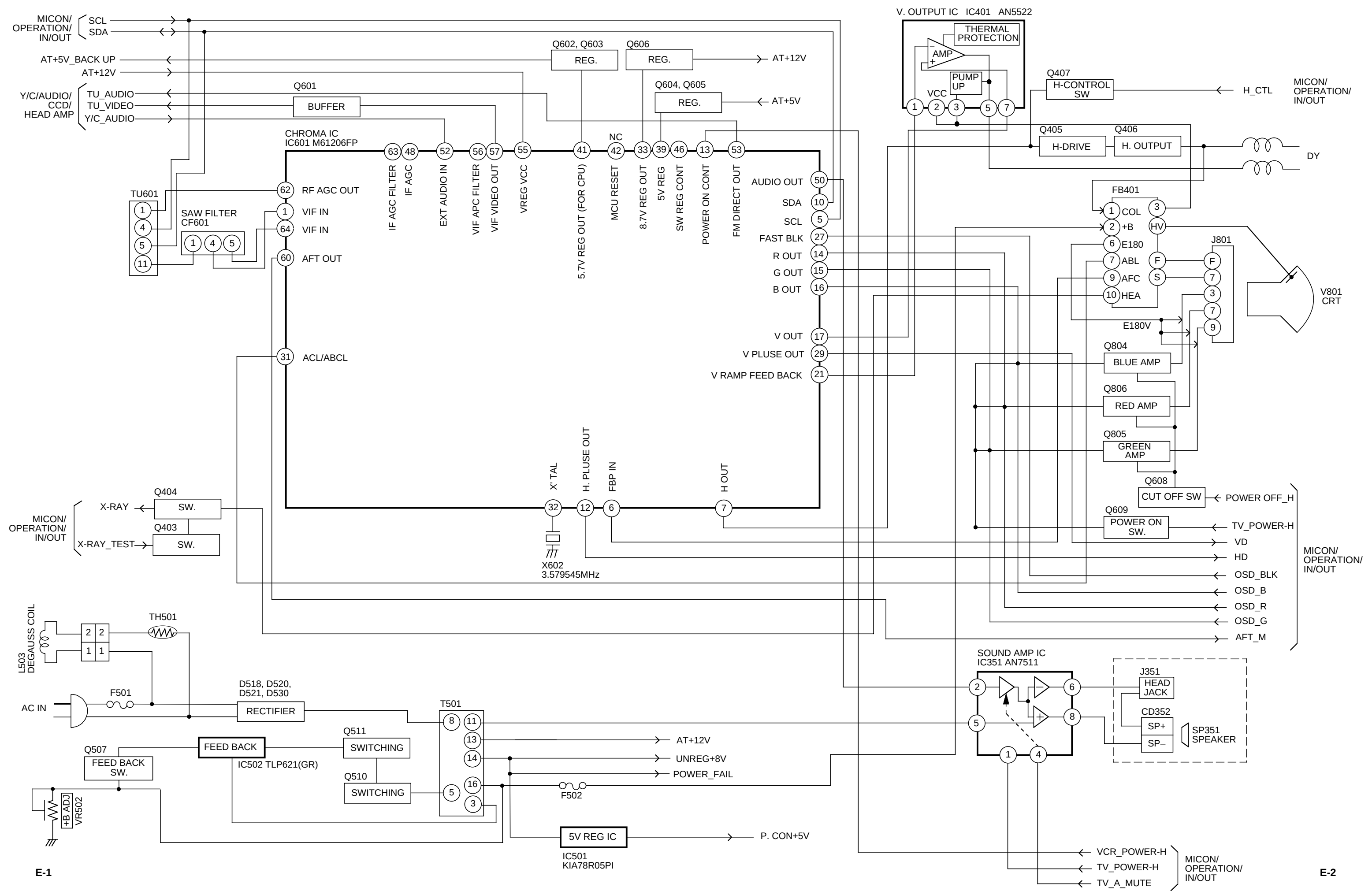
Fig. 4-2-a



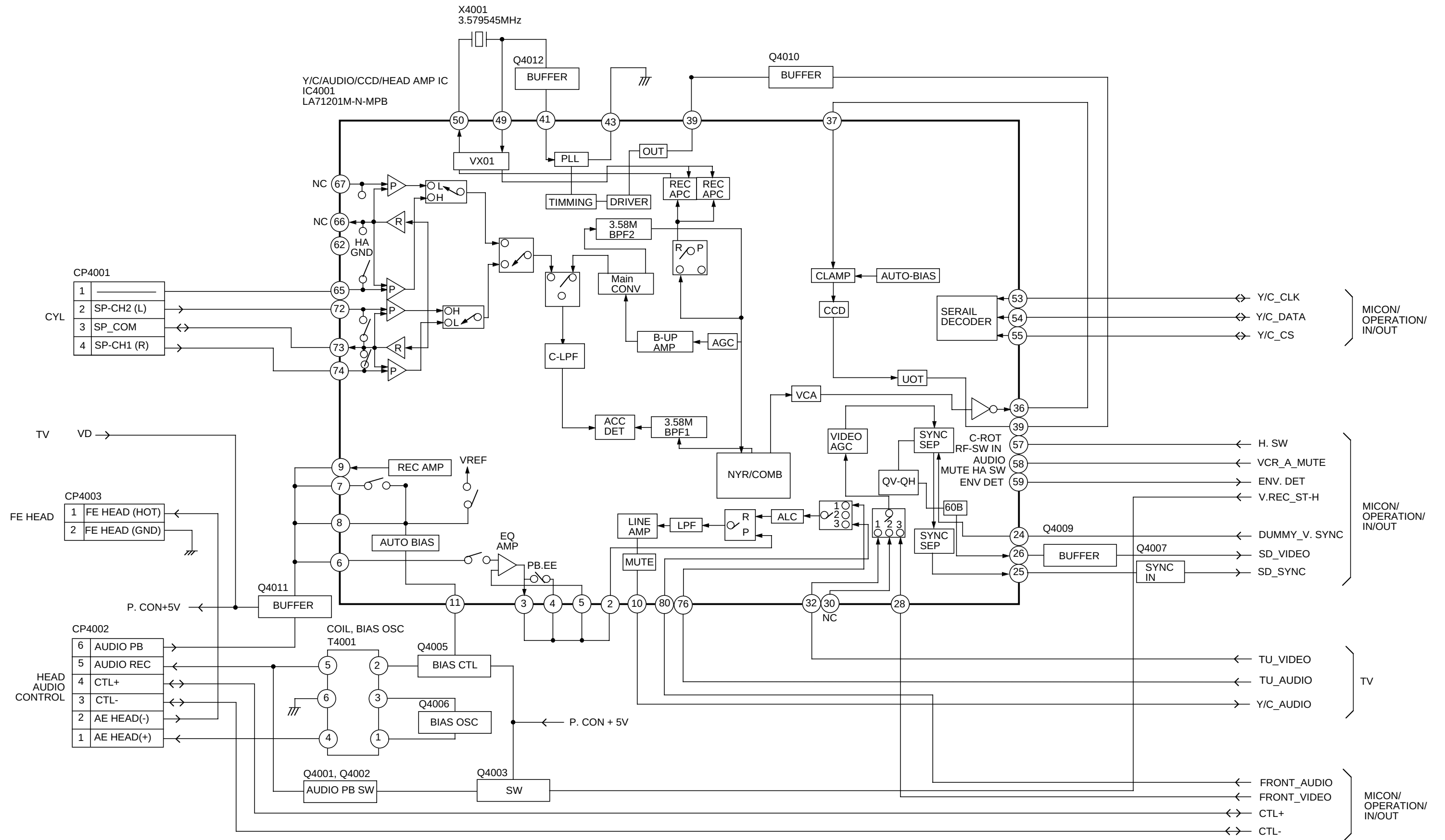
WEDGE POSITION

Fig. 4-2-b

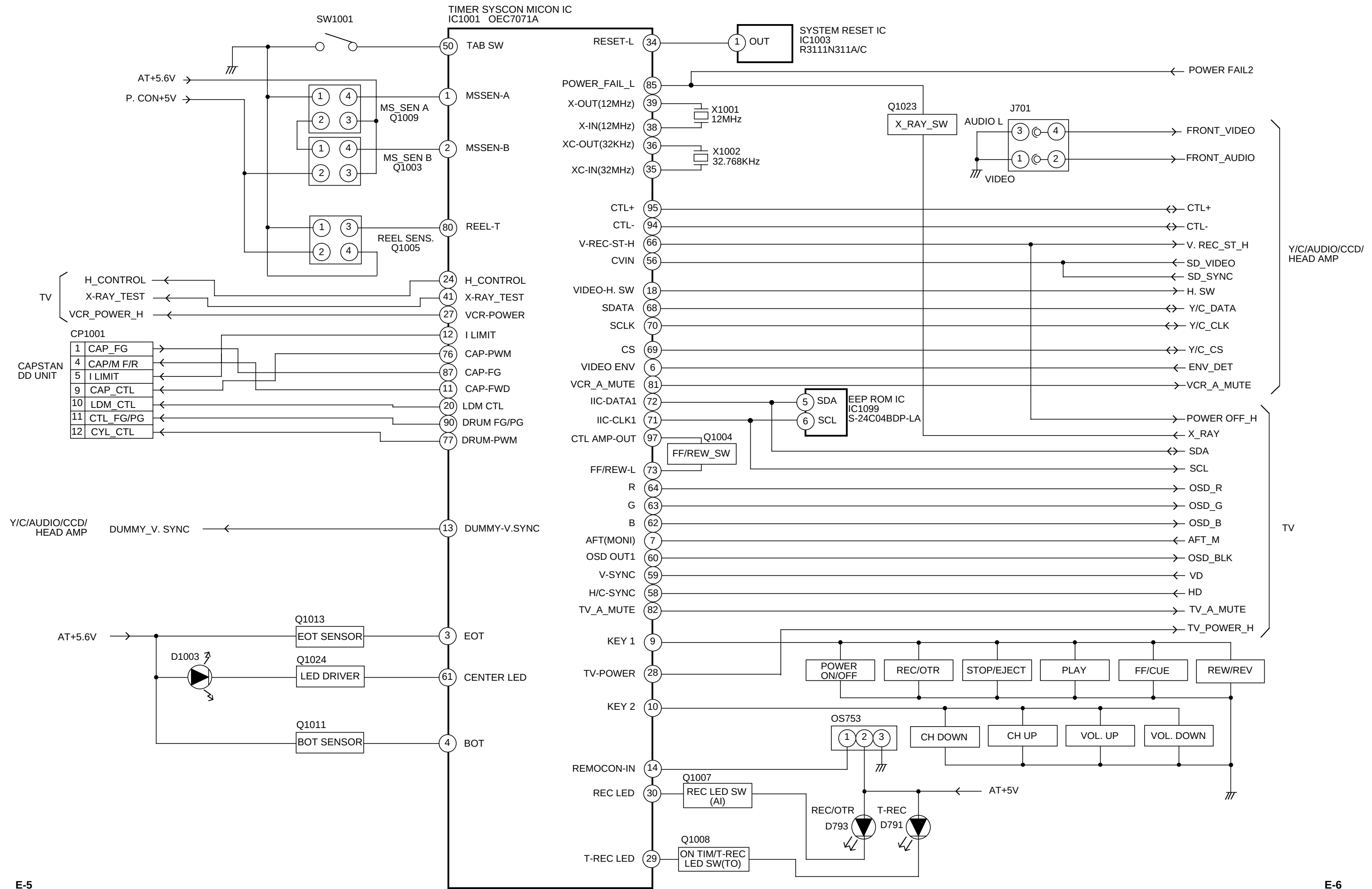
TV BLOCK DIAGRAM



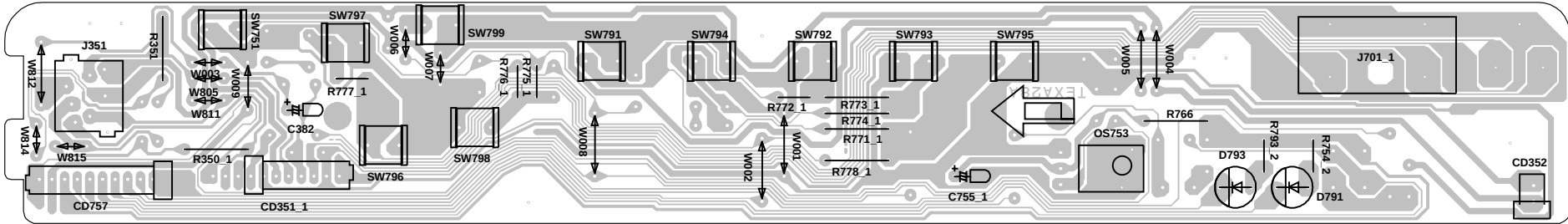
Y/C/AUDIO/CCD/HEAD AMP BLOCK DIAGRAM



MICON/OPERATION/IN/OUT BLOCK DIAGRAM



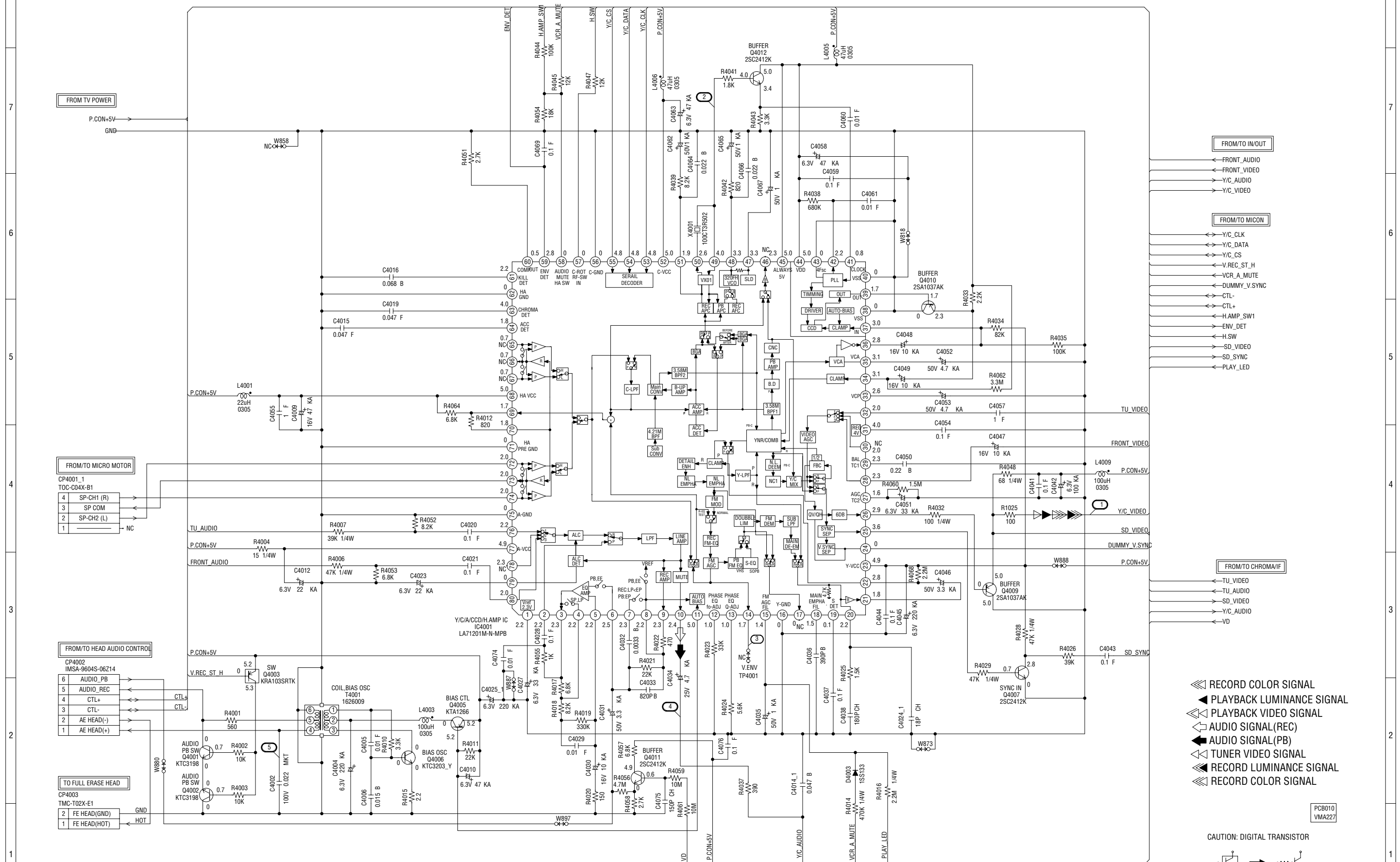
PRINTED CIRCUIT BOARDS
OPERATION
SOLDER SIDE



CD852



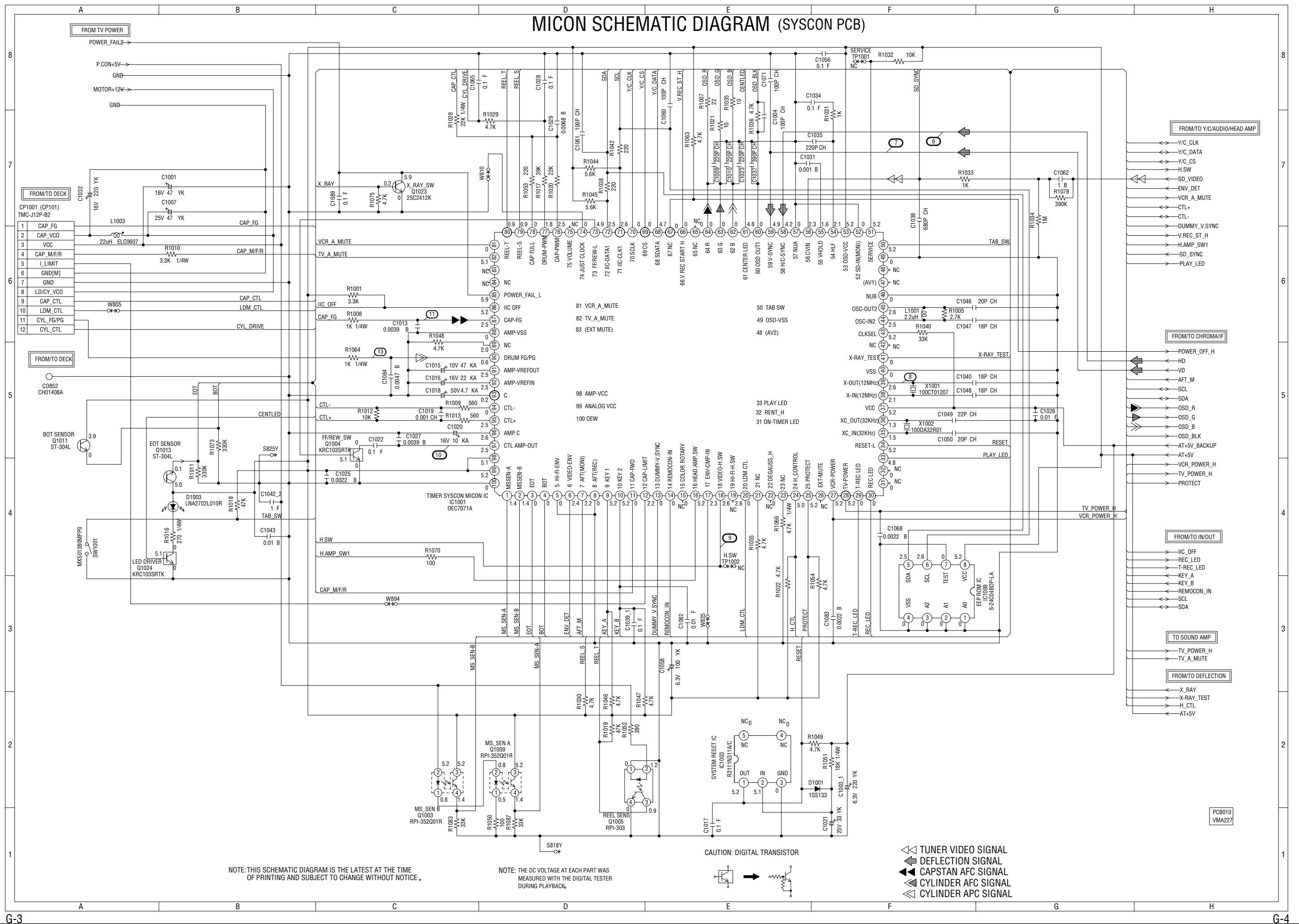
Y/C/AUDIO/CCD/HEAD AMP SCHEMATIC DIAGRAM (SYSCON PCB)



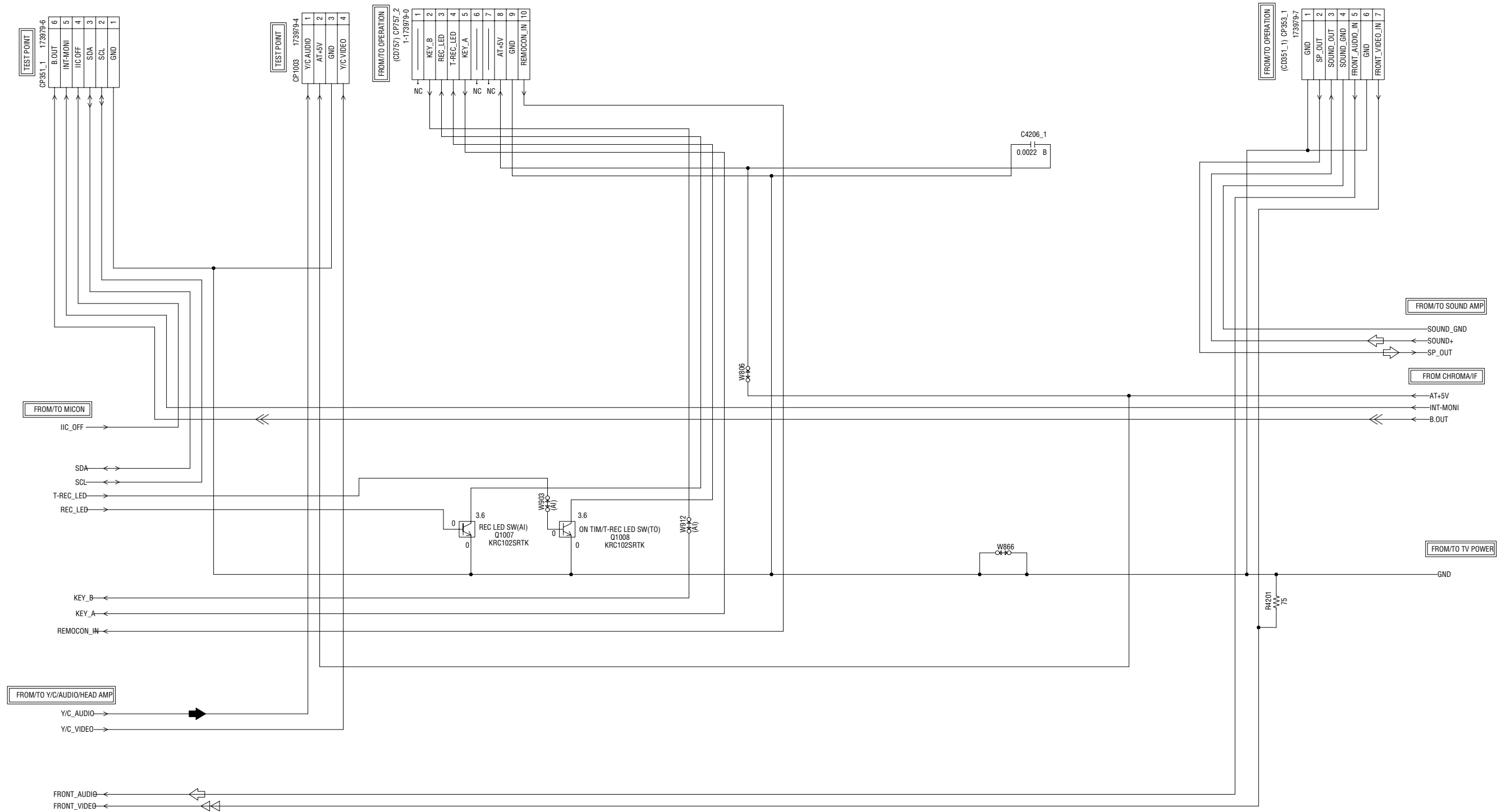
NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

MICON SCHEMATIC DIAGRAM (SYSCON PCB)



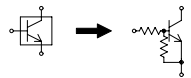
IN/OUT SCHEMATIC DIAGRAM
(SYSCON PCB)



NOTE: THE DC VOLTAGE AT EACH PART WAS
MEASURED WITH THE DIGITAL TESTER
DURING PLAYBACK.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME
OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

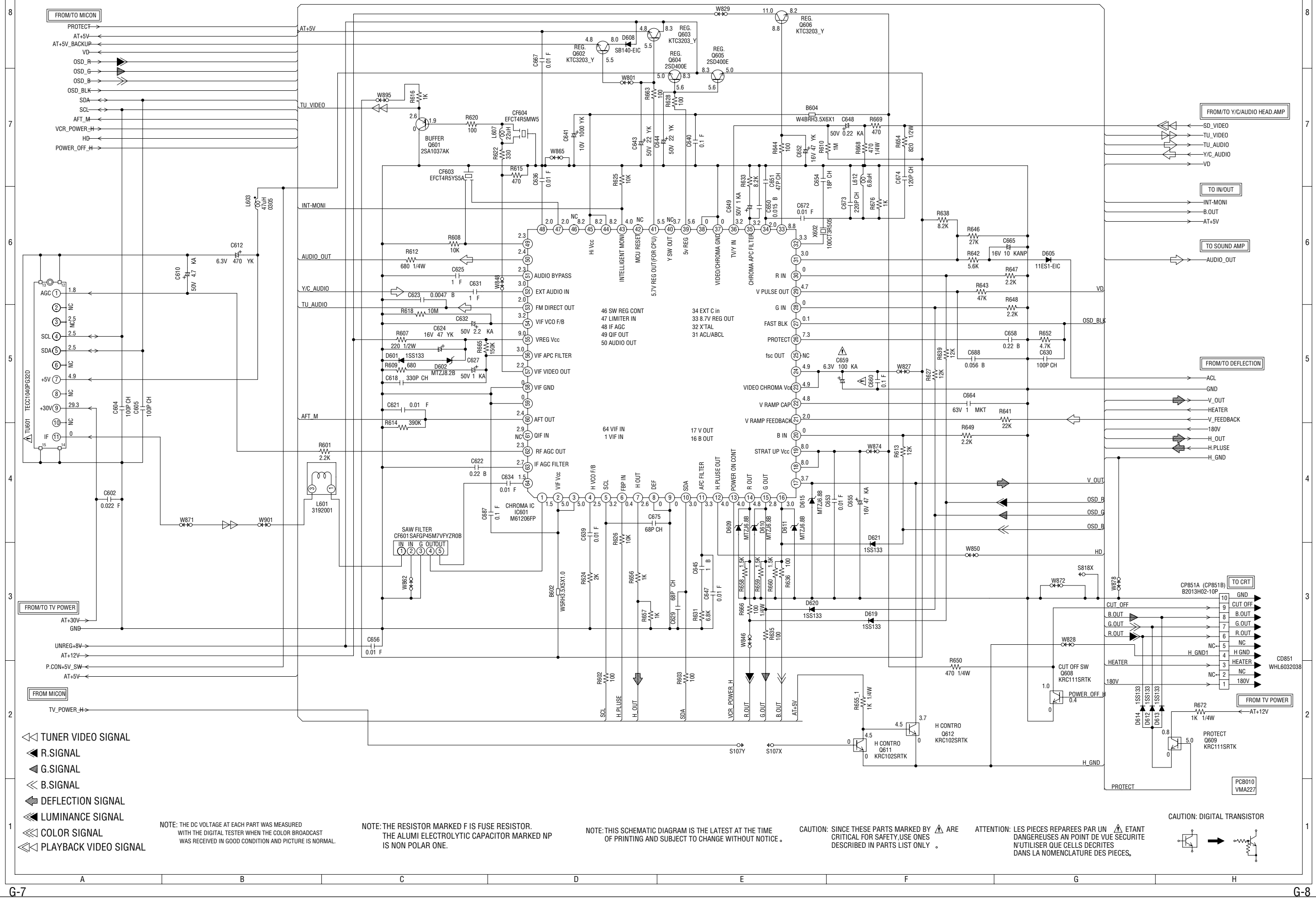
CAUTION: DIGITAL TRANSISTOR



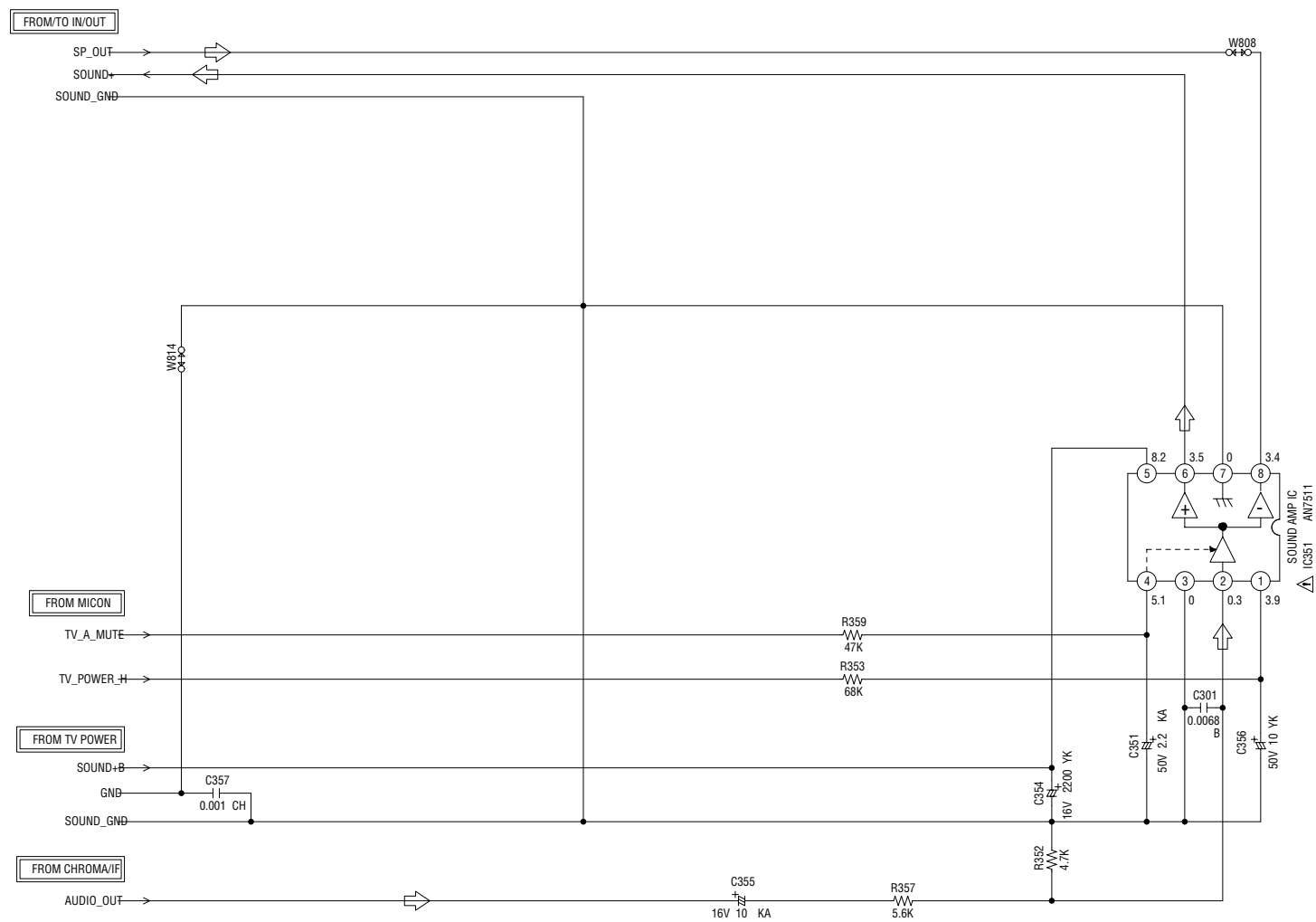
- ≡ B.SIGNAL
- ≡ TUNER VIDEO SIGNAL
- ≡ AUDIO SIGNAL(REC)
- ≡ AUDIO SIGNAL(PB)

PCB010
VMA227

CHROMA/IF SCHEMATIC DIAGRAM (SYSCON PCB)



SOUND AMP SCHEMATIC DIAGRAM
(SYSCON PCB)



NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED
WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST
WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME
OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE .

CAUTION: SINCE THESE PARTS MARKED BY  ARE
CRITICAL FOR SAFETY, USE ONES
DESCRIBED IN PARTS LIST ONLY .

ATTENTION: LES PIECES REPARÉES PAR UN  ETANT
DANGEREUSES AN POINT DE VUE SECURITE
N'UTILISER QUE CELLS DECRITES
DANS LA NOMENCLATURE DES PIECES.

← AUDIO SIGNAL(REC)

PCB010
VMA227

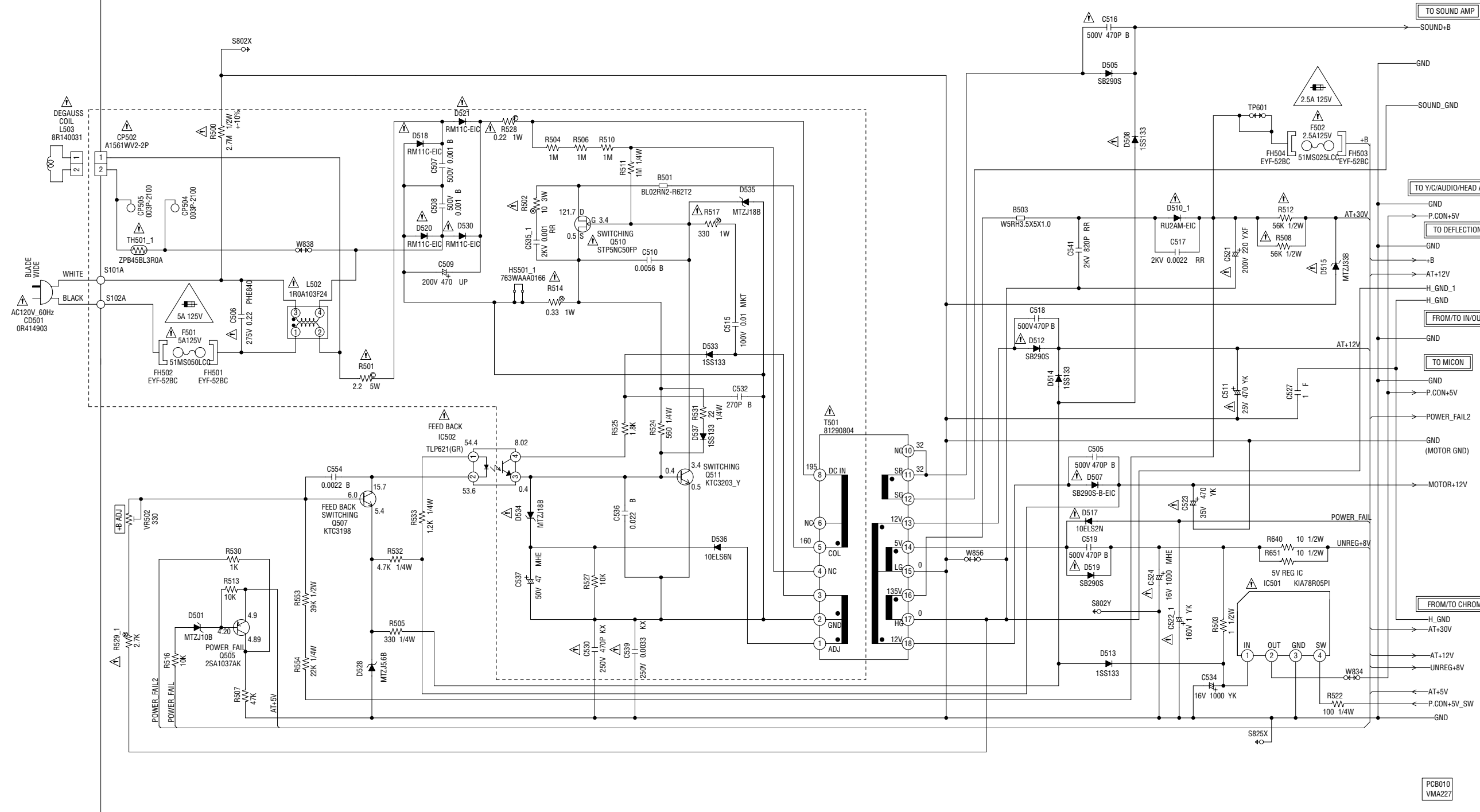
POWER SCHEMATIC DIAGRAM

(SYSCON PCB)



**CAUTION: FOR CONTINUED PROTECTION AGAINST FIRE HAZARD,
REPLACE ONLY WITH THE SAME TYPE FUSE 5A 125V
(F501) AND 2.5A 125V (F502)**

**ATTENTION: POUR UNE PROTECTION CONTINUE LES RISQUES D'INCEIE
N'UTILISER QUE DES FUSIBLE DE MEME TYPE 5A 125V
(F501) ET 2.5A 125V (F502)**



NOTE: THE RESISTOR MARKED F IS FUSE RESISTOR.
THE ALUMI ELECTROLYTIC CAPACITOR MARKED NP
IS NON POLAR ONE.

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

CAUTION: SINCE THESE PARTS MARKED BY ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED IN PARTS LIST ONLY .

ATTENTION: LES PIECES REPARÉES PAR UN  ÉTANT DANGEREUSES AU POINT DE VUE SÉCURITÉ N'UTILISER QUE CELLES DÉCRITES DANS LA NOMENCLATURE DES PIÈCES.

DEFLECTION SCHEMATIC DIAGRAM
(SYSCON PCB)

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

CAUTION: SINCE THESE PARTS MARKED BY ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED IN PARTS LIST ONLY.

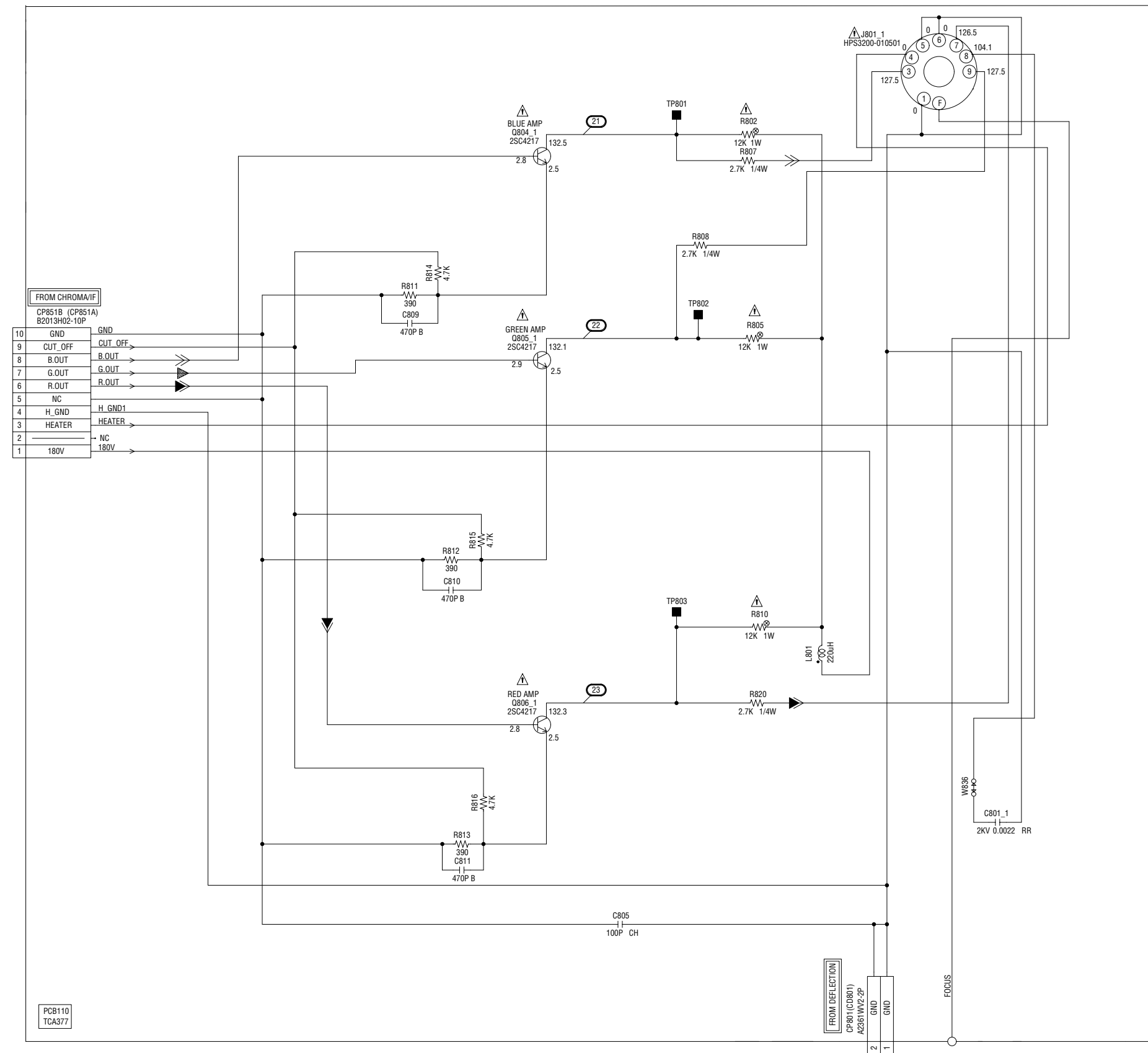
ATTENTION: LES PIECES REPARÉES PAR UN ÉTANT DANGEREUSES AU POINT DE VUE SÉCURITÉ, N'UTILISER QUE CELLES DÉCRITES DANS LA NOMENCLATURE DES PIÈCES.

NOTE: THE RESISTOR MARKED F IS FUSE RESISTOR. THE ALUMI ELECTROLYTIC CAPACITOR MARKED NP IS NON POLAR ONE.

DEFLECTION SIGNAL

DEFLECTION SIGNAL

CRT SCHEMATIC DIAGRAM (CRT PCB)



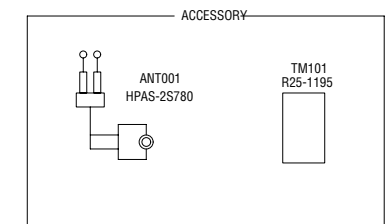
NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

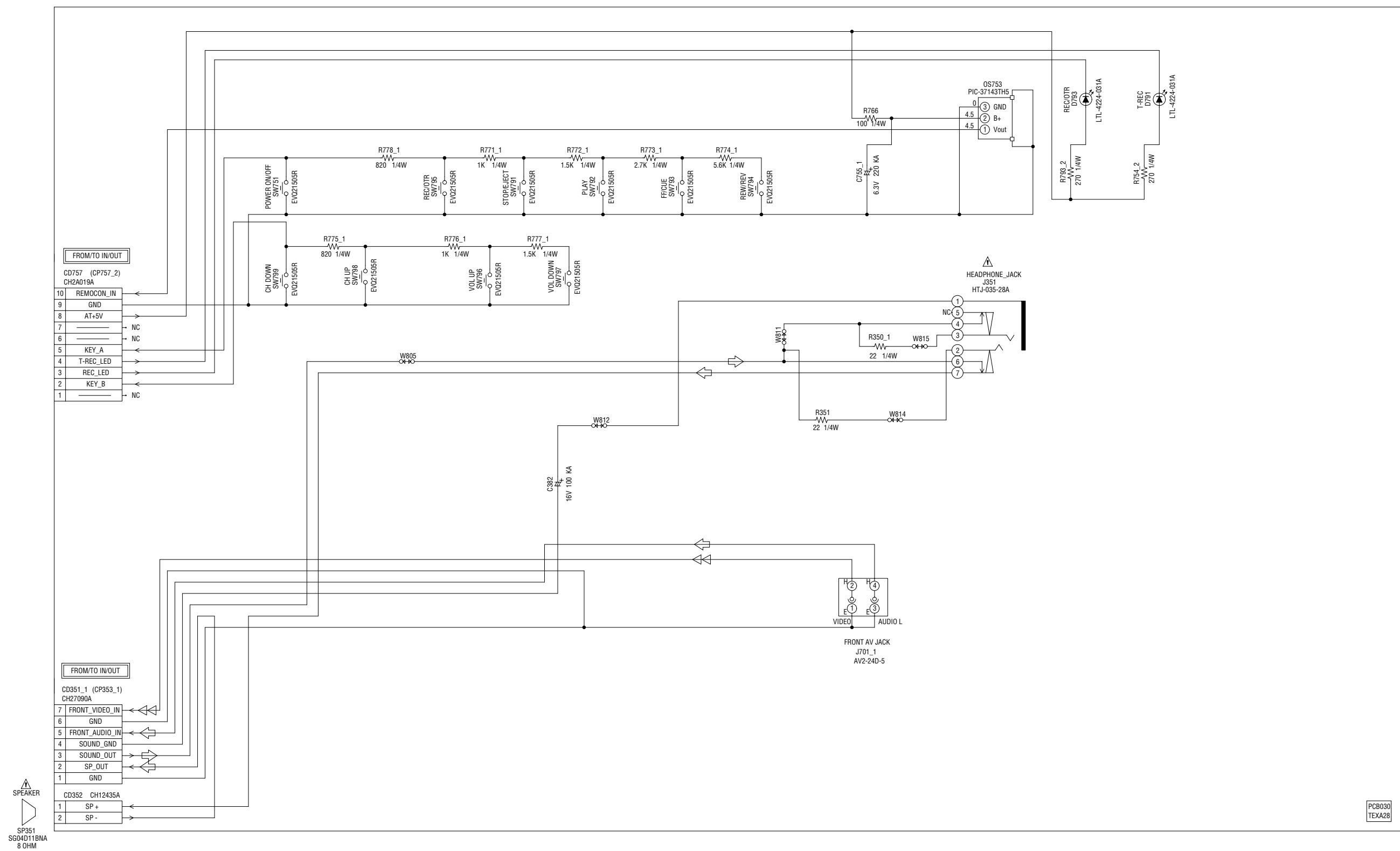
CAUTION: SINCE THESE PARTS MARKED BY ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED IN PARTS LIST ONLY .

ATTENTION: LES PIÈCES RÉPARÉES PAR UN  ÉTANT DANGEREUSES AU POINT DE VUE SÉCURITÉ N'UTILISER QUE CELLES DÉCRITES DANS LA NOMENCLATURE DES PIÈCES.

◀ R.SIGNAL
◀ G.SIGNAL
◀ B.SIGNAL



OPERATION SCHEMATIC DIAGRAM
(OPERATION PCB)



NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED
WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST
WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

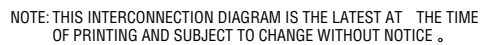
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME
OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

CAUTION: SINCE THESE PARTS MARKED BY  ARE
CRITICAL FOR SAFETY, USE ONES
DESCRIBED IN PARTS LIST ONLY.

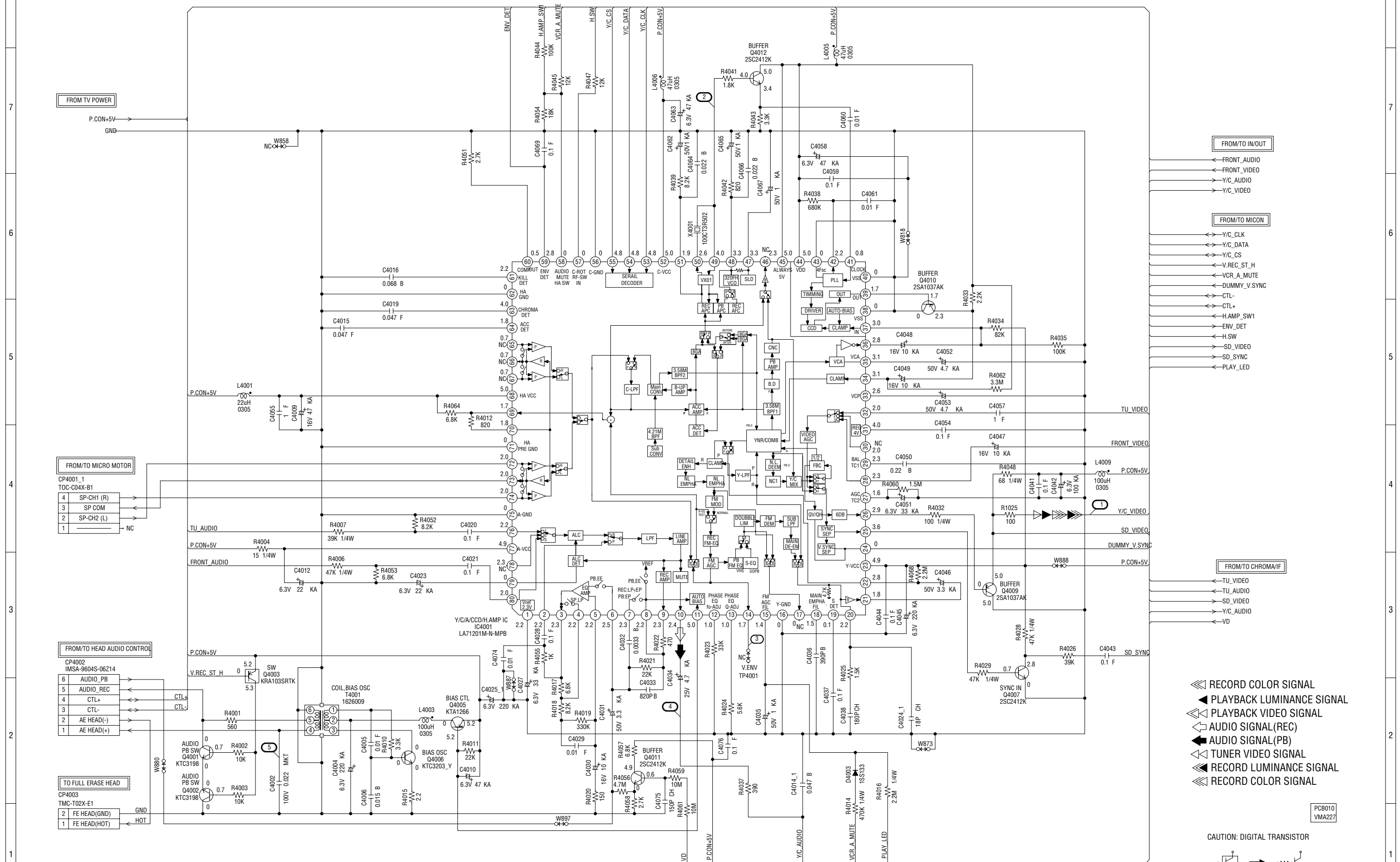
ATTENTION: LES PIECES REPARÉES PAR UN  ETANT
DANGEREUSES AN POINT DE VUE SECURITE
N'UTILISER QUE CELLS DECRITES
DANS LA NOMENCLATURE DES PIECES.

 TUNER VIDEO SIGNAL
 AUDIO SIGNAL(REC)

INTERCONNECTION DIAGRAM



Y/C/AUDIO/CCD/HEAD AMP SCHEMATIC DIAGRAM (SYSCON PCB)

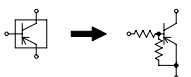


NOTE: THE DC VOLTAGE AT EACH PART WAS
MEASURED WITH THE DIGITAL TESTER
DURING PLAYBACK.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME
OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

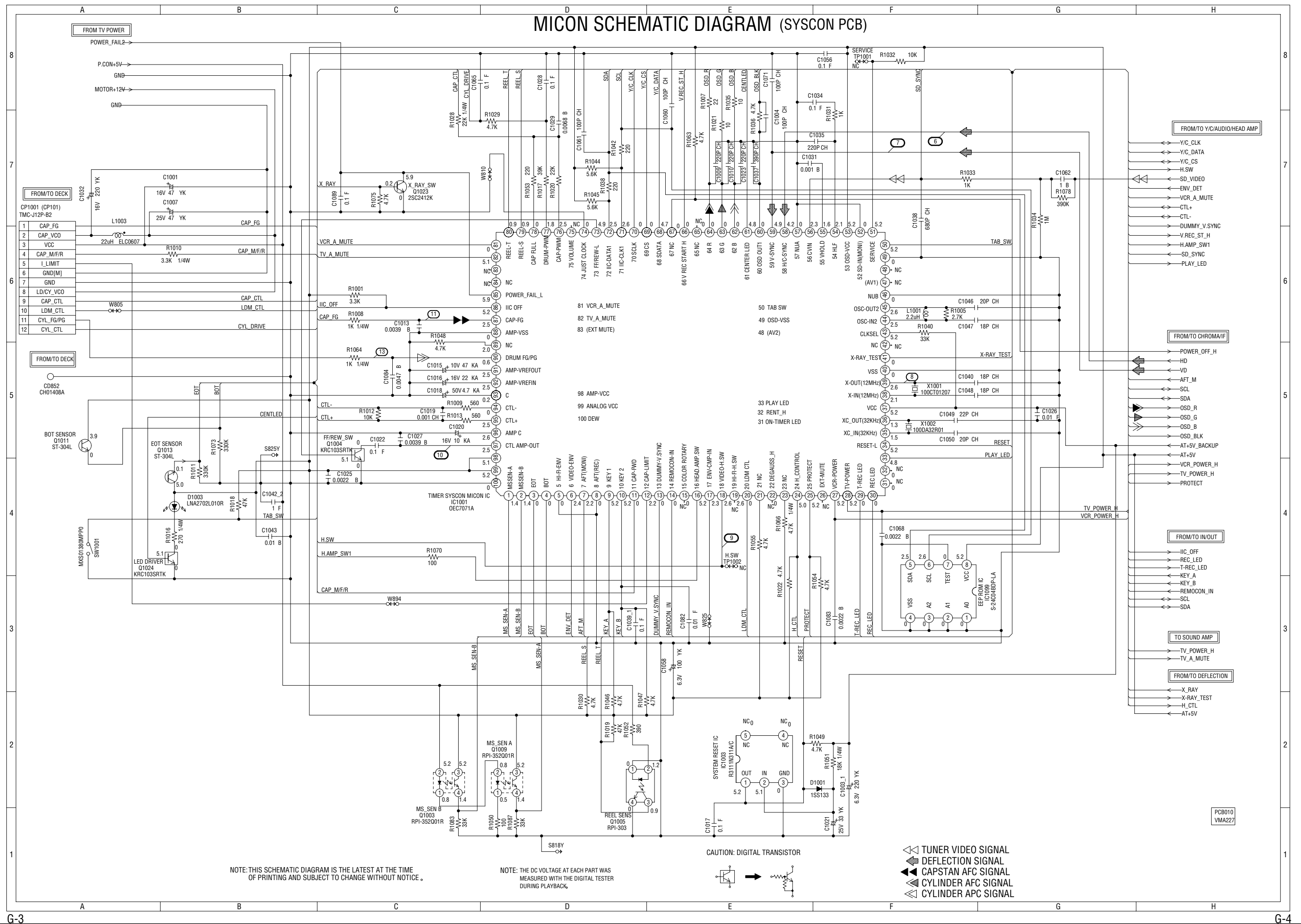
- RECORD COLOR SIGNAL
- PLAYBACK LUMINANCE SIGNAL
- PLAYBACK VIDEO SIGNAL
- AUDIO SIGNAL(REC)
- AUDIO SIGNAL(PB)
- TUNER VIDEO SIGNAL
- RECORD LUMINANCE SIGNAL
- RECORD COLOR SIGNAL

CAUTION: DIGITAL TRANSISTOR

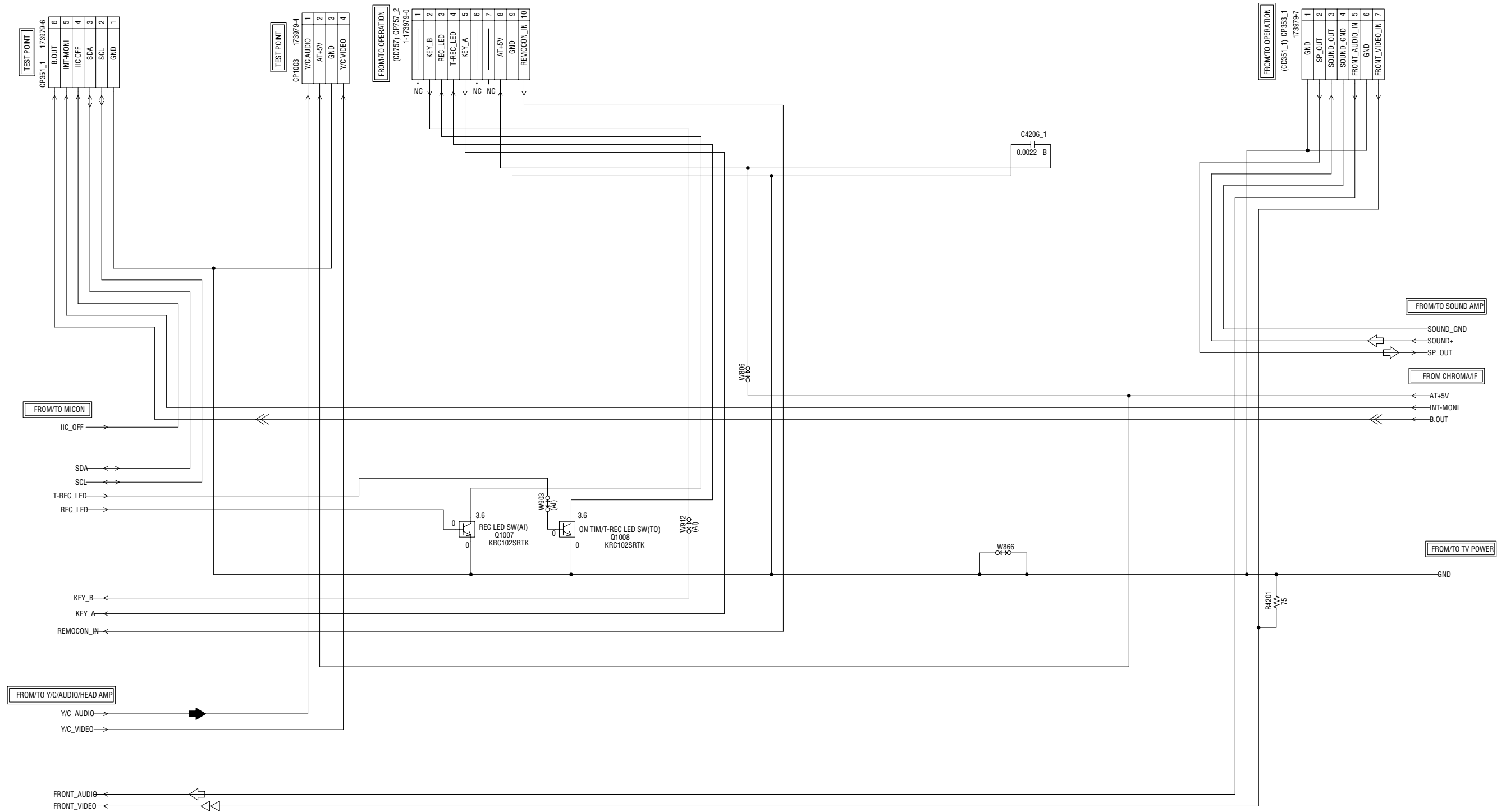


PCB010
VMA227

MICON SCHEMATIC DIAGRAM (SYSCON PCB)



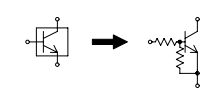
IN/OUT SCHEMATIC DIAGRAM
(SYSCON PCB)



NOTE: THE DC VOLTAGE AT EACH PART WAS
MEASURED WITH THE DIGITAL TESTER
DURING PLAYBACK.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME
OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

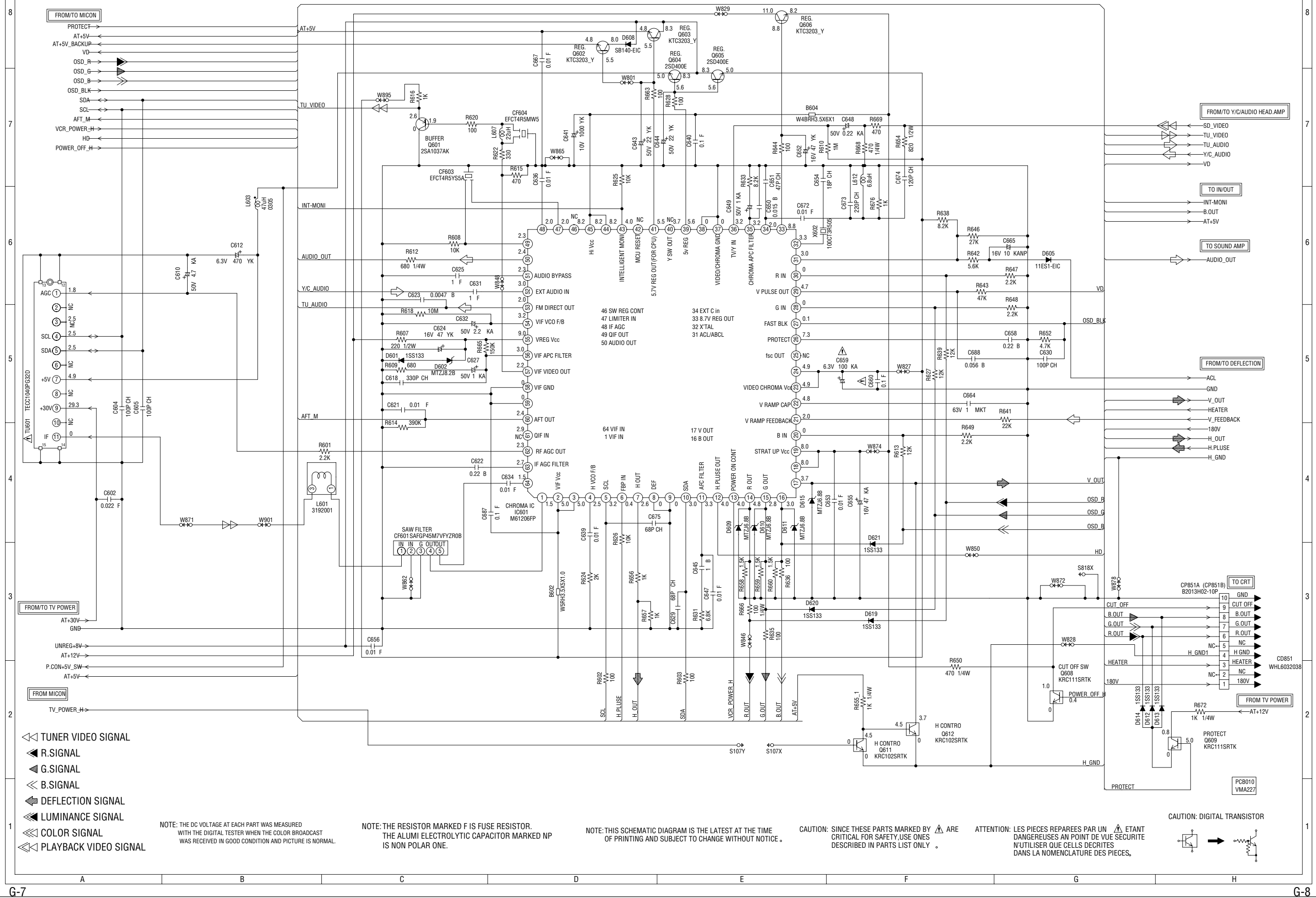
CAUTION: DIGITAL TRANSISTOR



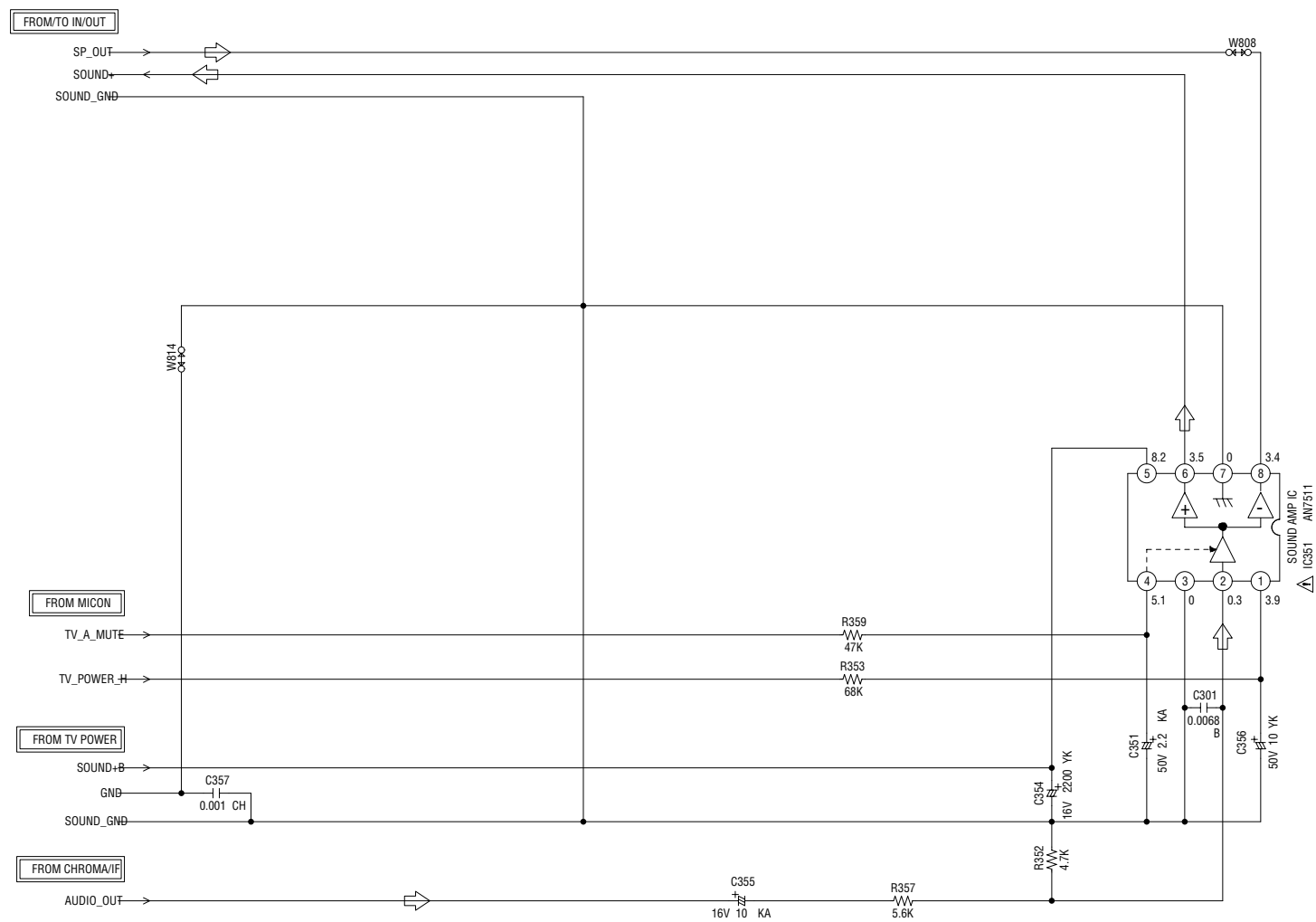
- ◀ B.SIGNAL
- ◀ TUNER VIDEO SIGNAL
- ◀ AUDIO SIGNAL(REC)
- ◀ AUDIO SIGNAL(PB)

PCB010
VMA227

CHROMA/IF SCHEMATIC DIAGRAM (SYSCON PCB)



SOUND AMP SCHEMATIC DIAGRAM
(SYSCON PCB)



NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED
WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST
WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME
OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE .

CAUTION: SINCE THESE PARTS MARKED BY ARE
CRITICAL FOR SAFETY, USE ONES
DESCRIBED IN PARTS LIST ONLY .

ATTENTION: LES PIECES REPARÉES PAR UN ETANT
DANGEREUSES AN POINT DE VUE SECURITE
N'UTILISER QUE CELLS DECRITES
DANS LA NOMENCLATURE DES PIECES.

← AUDIO SIGNAL(REC)

PCB010
VMA227

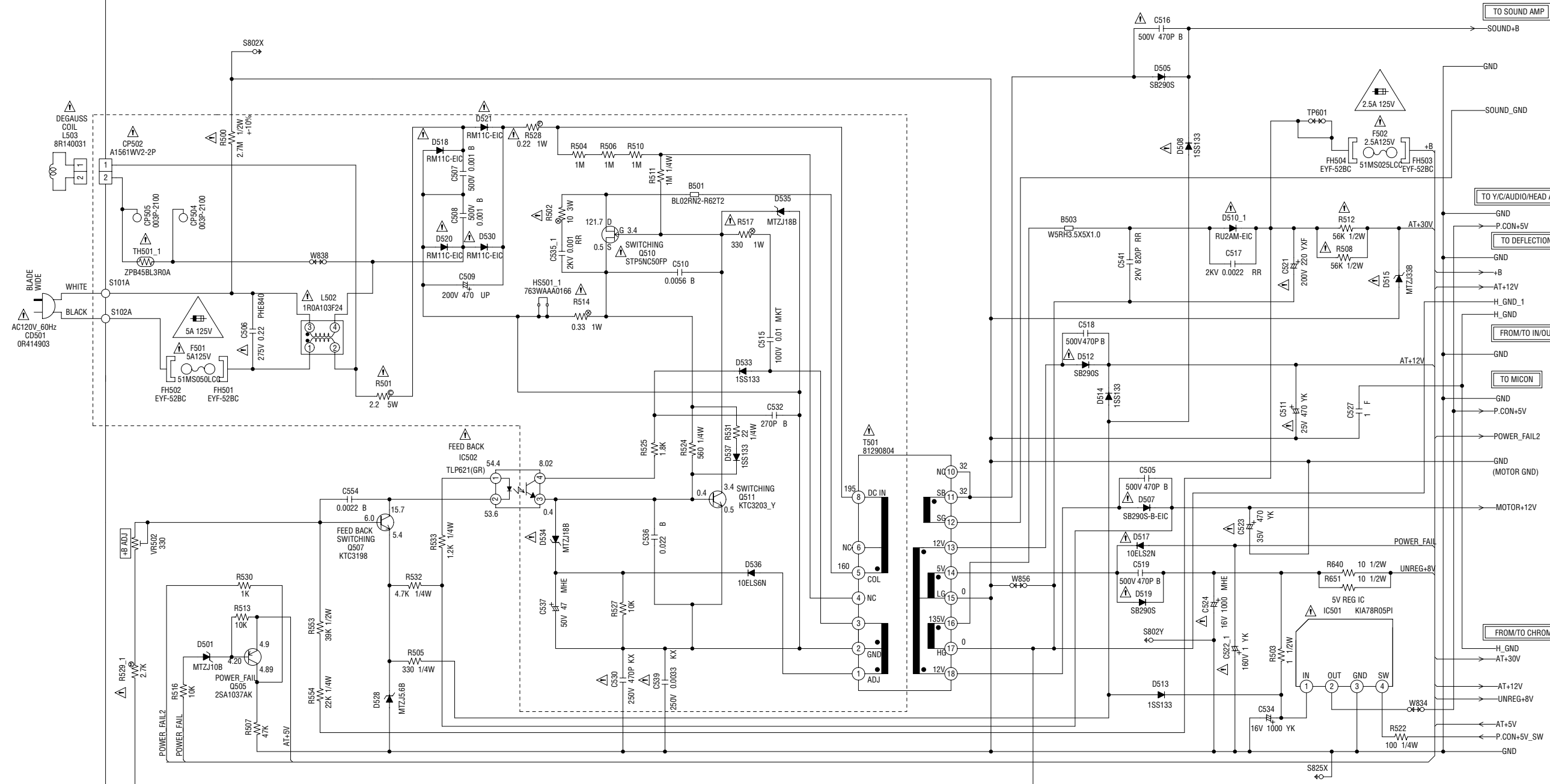
POWER SCHEMATIC DIAGRAM

(SYSCON PCB)



**CAUTION: FOR CONTINUED PROTECTION AGAINST FIRE HAZARD,
REPLACE ONLY WITH THE SAME TYPE FUSE 5A 125V
(F501) AND 2.5A 125V (F502)**

**ATTENTION: POUR UNE PROTECTION CONTINUE LES RISQUES D'INCEIE
N'UTILISER QUE DES FUSIBLE DE MEME TYPE 5A 125V
(F501) ET 2.5A 125V (F502)**



NOTE: THE RESISTOR MARKED F IS FUSE RESISTOR.
THE ALUMI ELECTROLYTIC CAPACITOR MARKED NP
IS NON POLAR ONE.

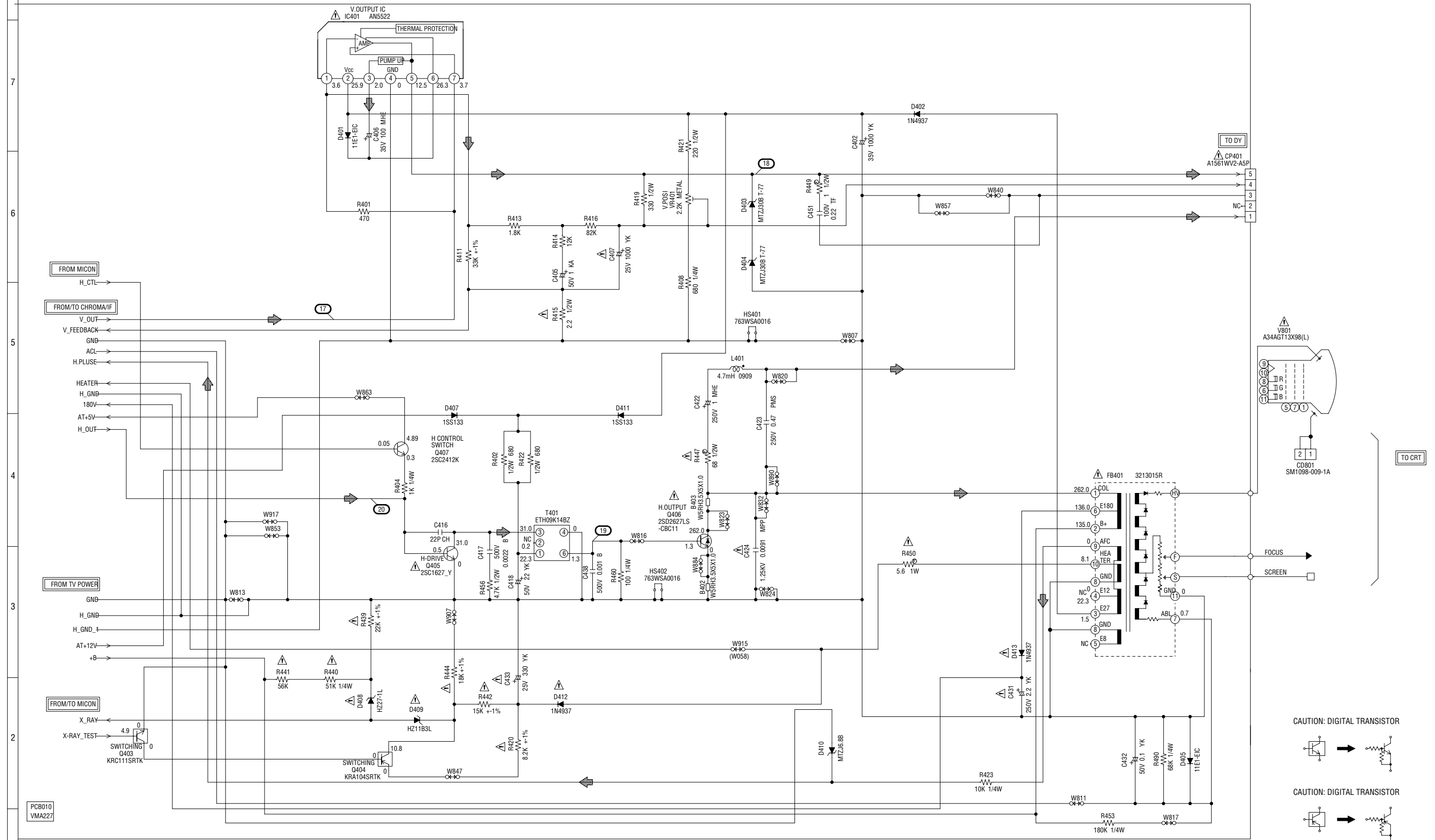
NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

CAUTION: SINCE THESE PARTS MARKED BY  ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED IN PARTS LIST ONLY .

ATTENTION: LES PIÈCES RÉPARÉES PAR UN  ÉTANT DANGEREUSES AU POINT DE VUE SÉCURITÉ N'UTILISER QUE CELLES DÉCRITES DANS LA NOMENCLATURE DES PIÈCES.

(SYSCON PCB)



NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

CAUTION: SINCE THESE PARTS MARKED BY ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED IN PARTS LIST ONLY .

ATTENTION: LES PIECES REPARÉES PAR UN  ÉTANT DANGEREUSES AU POINT DE VUE SÉCURITÉ N'UTILISER QUE CELLES DÉCRITES DANS LA NOMENCLATURE DES PIÈCES.

NOTE: THE RESISTOR MARKED F IS FUSE RESISTOR.
THE ALUMI ELECTROLYTIC CAPACITOR MARKED NP
IS NON POLAR ONE.

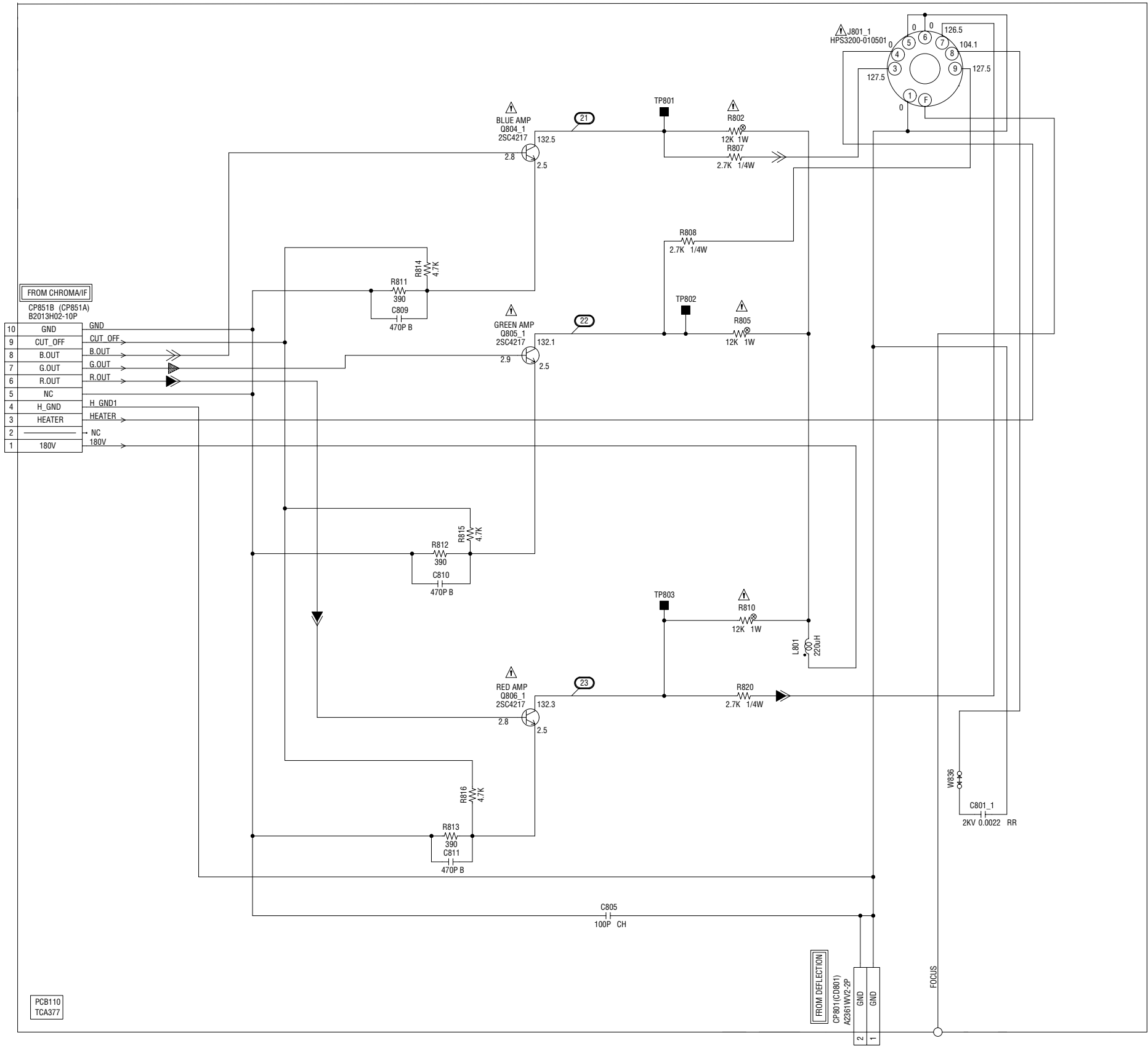
CAUTION: DIGITAL TRANSISTOR



CAUTION: DIGITAL TRANSISTOR



CRT SCHEMATIC DIAGRAM
(CRT PCB)



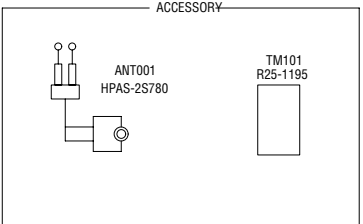
NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED
WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST
WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME
OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE .

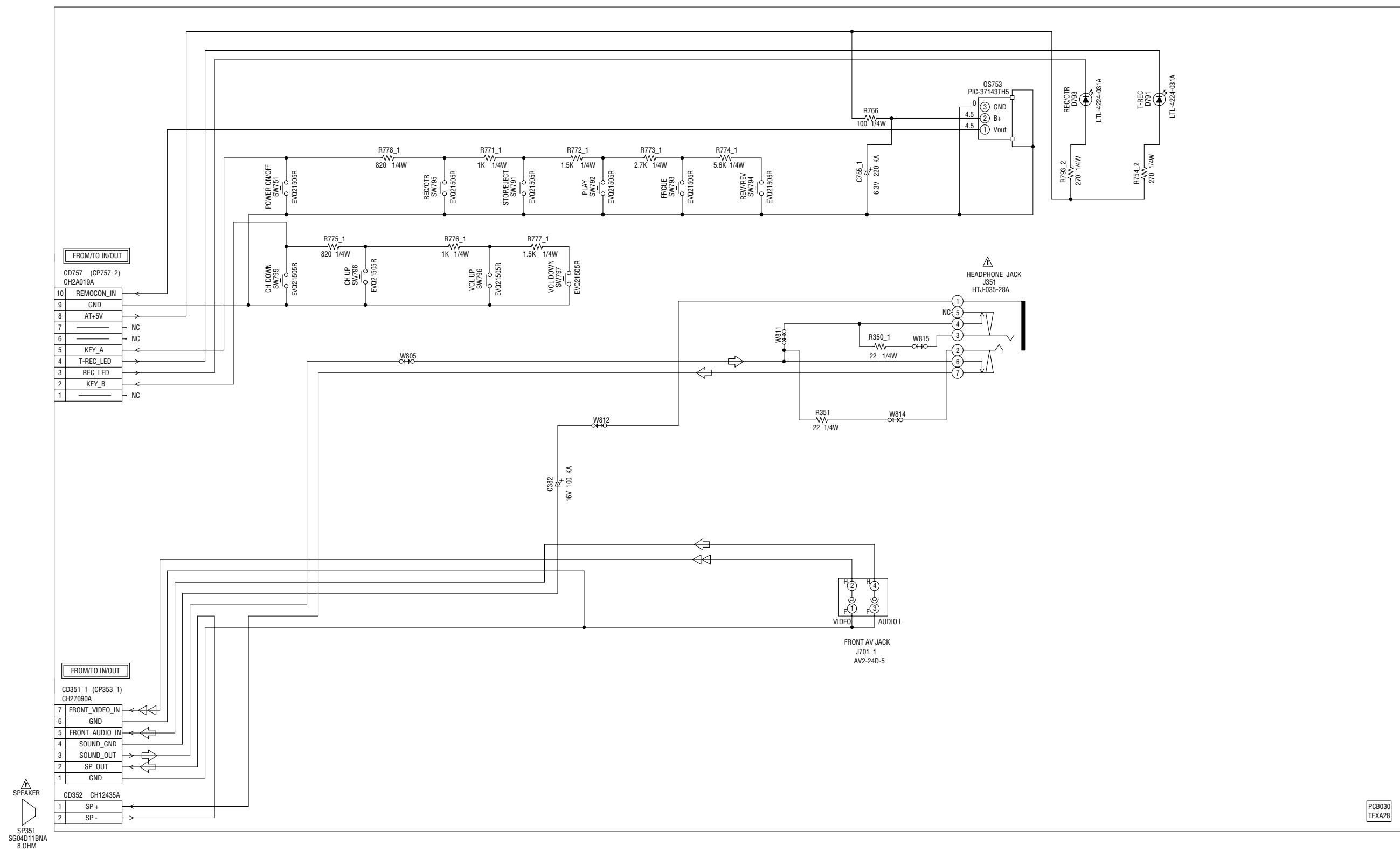
CAUTION: SINCE THESE PARTS MARKED BY  ARE
CRITICAL FOR SAFETY, USE ONES
DESCRIBED IN PARTS LIST ONLY .

ATTENTION: LES PIECES REPARÉES PAR UN  ETANT
DANGEREUSES AN POINT DE VUE SECURITE
N'UTILISER QUE CELLS DECRITES
DANS LA NOMENCLATURE DES PIECES.

◀ R.SIGNAL
◀ G.SIGNAL
◀ B.SIGNAL



OPERATION SCHEMATIC DIAGRAM
(OPERATION PCB)



NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED
WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST
WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

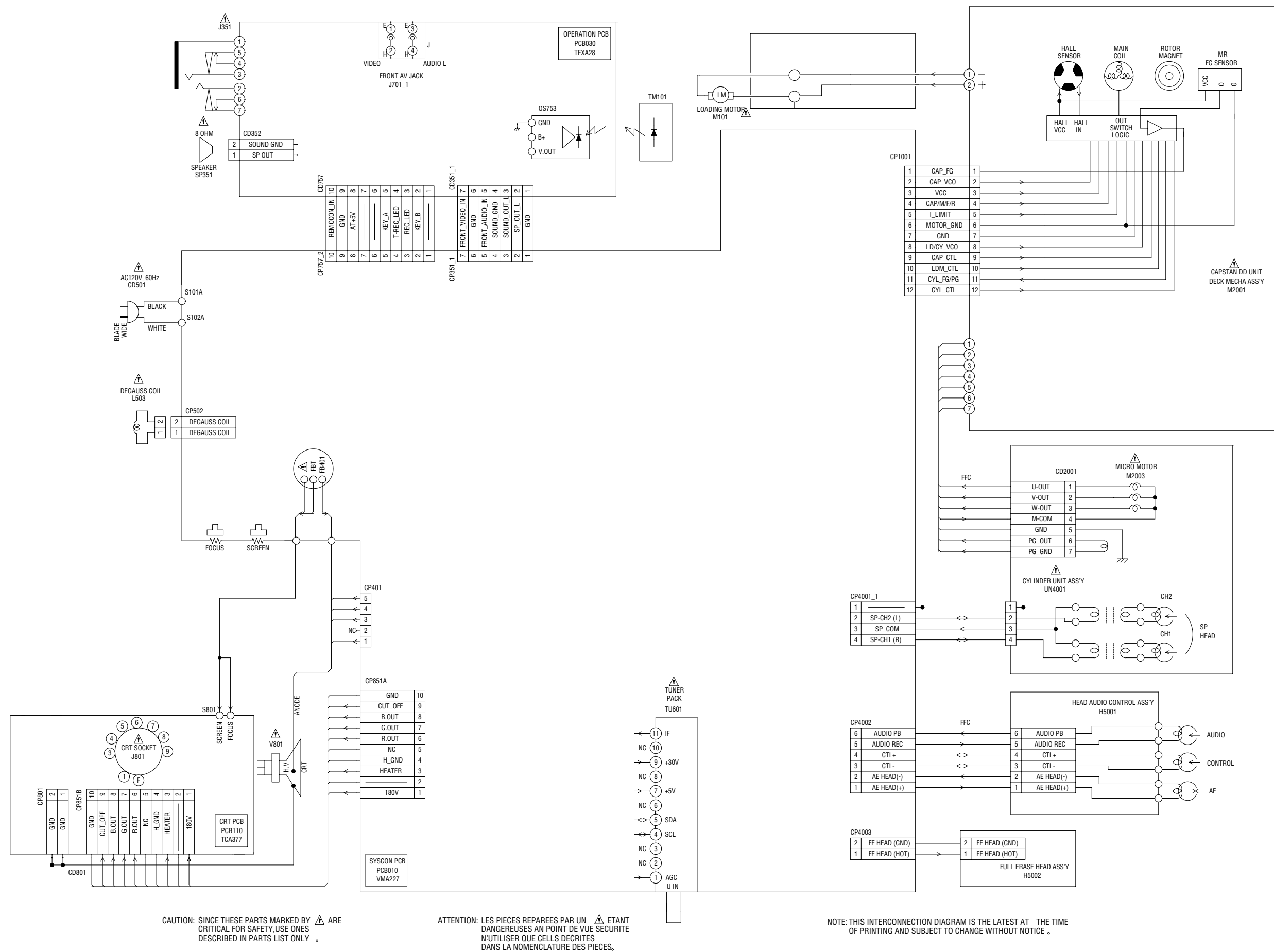
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME
OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

CAUTION: SINCE THESE PARTS MARKED BY  ARE
CRITICAL FOR SAFETY, USE ONES
DESCRIBED IN PARTS LIST ONLY.

ATTENTION: LES PIÈCES RÉPARÉES PAR UN  ÉTANT
DANGEREUSES AU POINT DE VUE SÉCURITÉ
N'UTILISER QUE CELLES DÉCRITES
DANS LA NOMENCLATURE DES PIÈCES.

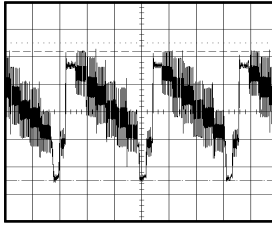
 TUNER VIDEO SIGNAL
 AUDIO SIGNAL(REC)

INTERCONNECTION DIAGRAM

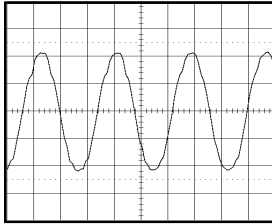


WAVEFORMS

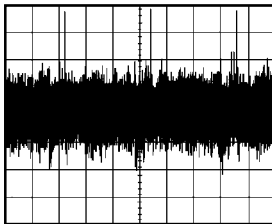
Y/C/AUDIO/CCD/HEAD AMP



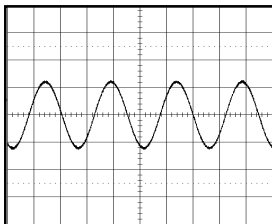
① PB
0.5V 20 μ s/div



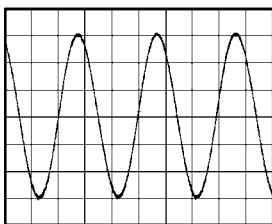
② POWER ON
100mV 0.1 μ s/div



③ PB
10mV 20 μ s/div

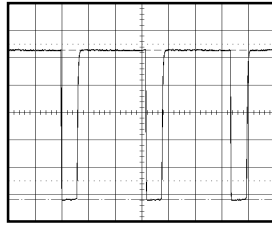


④ PB
0.5V 1ms/div

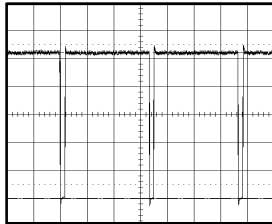


⑤ REC
10.0V 5 μ s/div

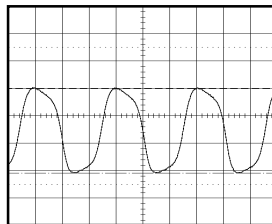
MICON



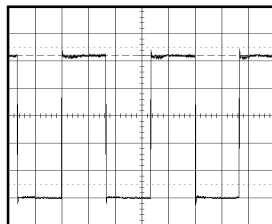
⑥ POWER ON
1.0V 20 μ s/div



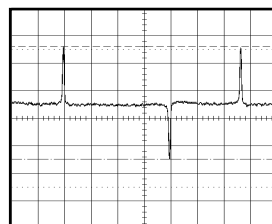
⑦ POWER ON
0.5V 10ms/div



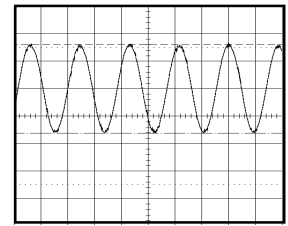
⑧ POWER ON
1.0V 10 μ s/div



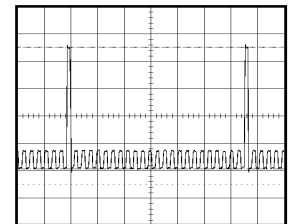
⑨ PB
1.0V 10ms/div



⑩ PB
1.0V 5ms/div

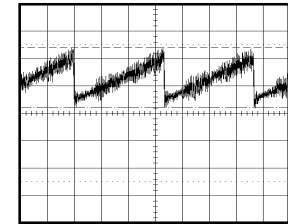


⑪ PB
0.5V 0.5ms/div

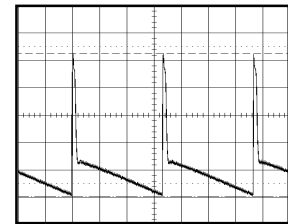


⑬ PB
1.0V 5ms/div

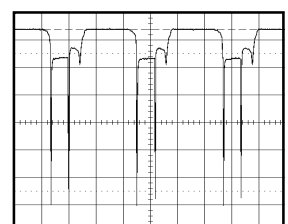
DEFLECTION



⑰ 0.5V 5ms/div



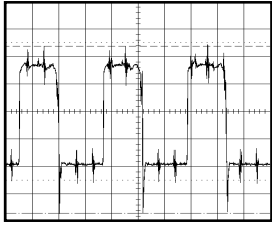
⑱ 10.0V 5ms/div



⑲ 2.0V 20 μ s/div

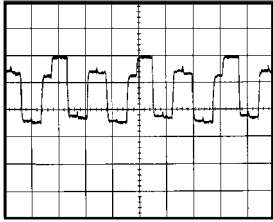
NOTE: The following waveforms were measured at the point of the corresponding balloon number in the schematic diagram.

WAVEFORMS

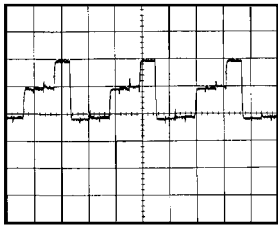


②① 200mV 20 μ s/div

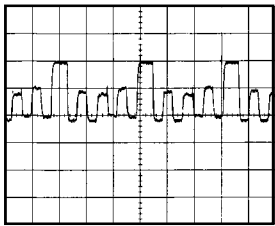
CRT



②① 50.0V 20 μ s/div



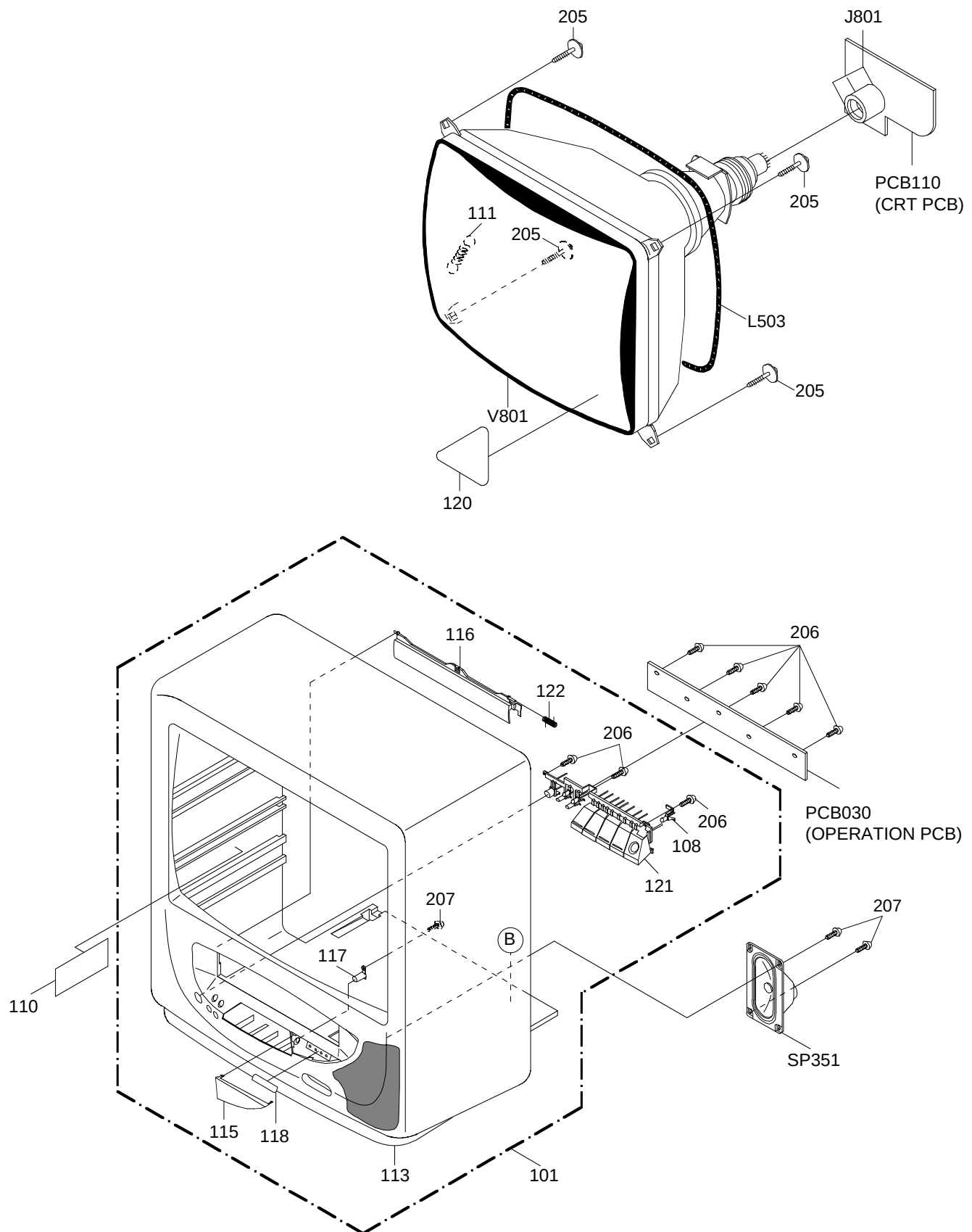
②② 50.0V 20 μ s/div



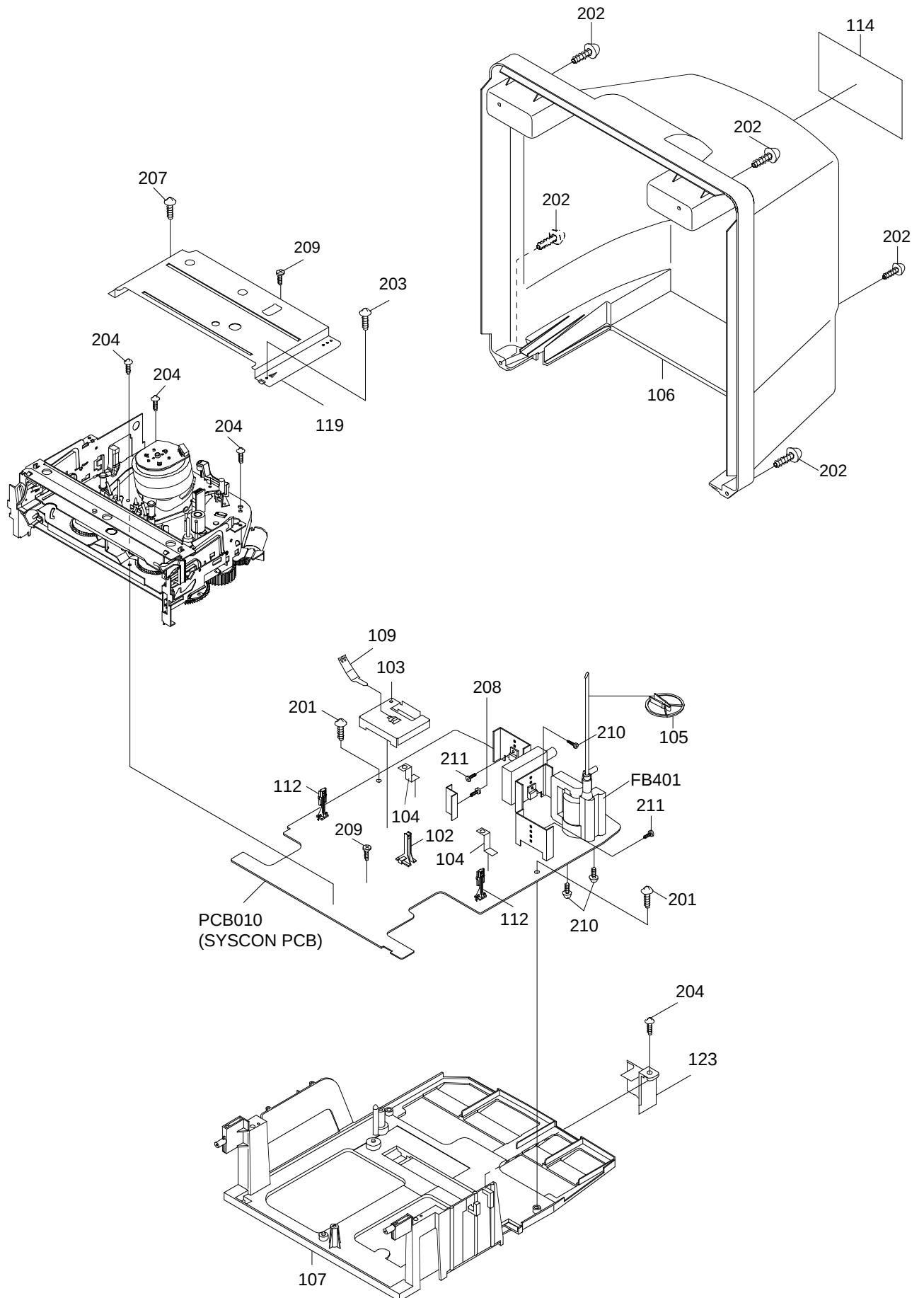
②③ 50.0V 20 μ s/div

NOTE: The following waveforms were measured at the point of the corresponding balloon number in the schematic diagram.

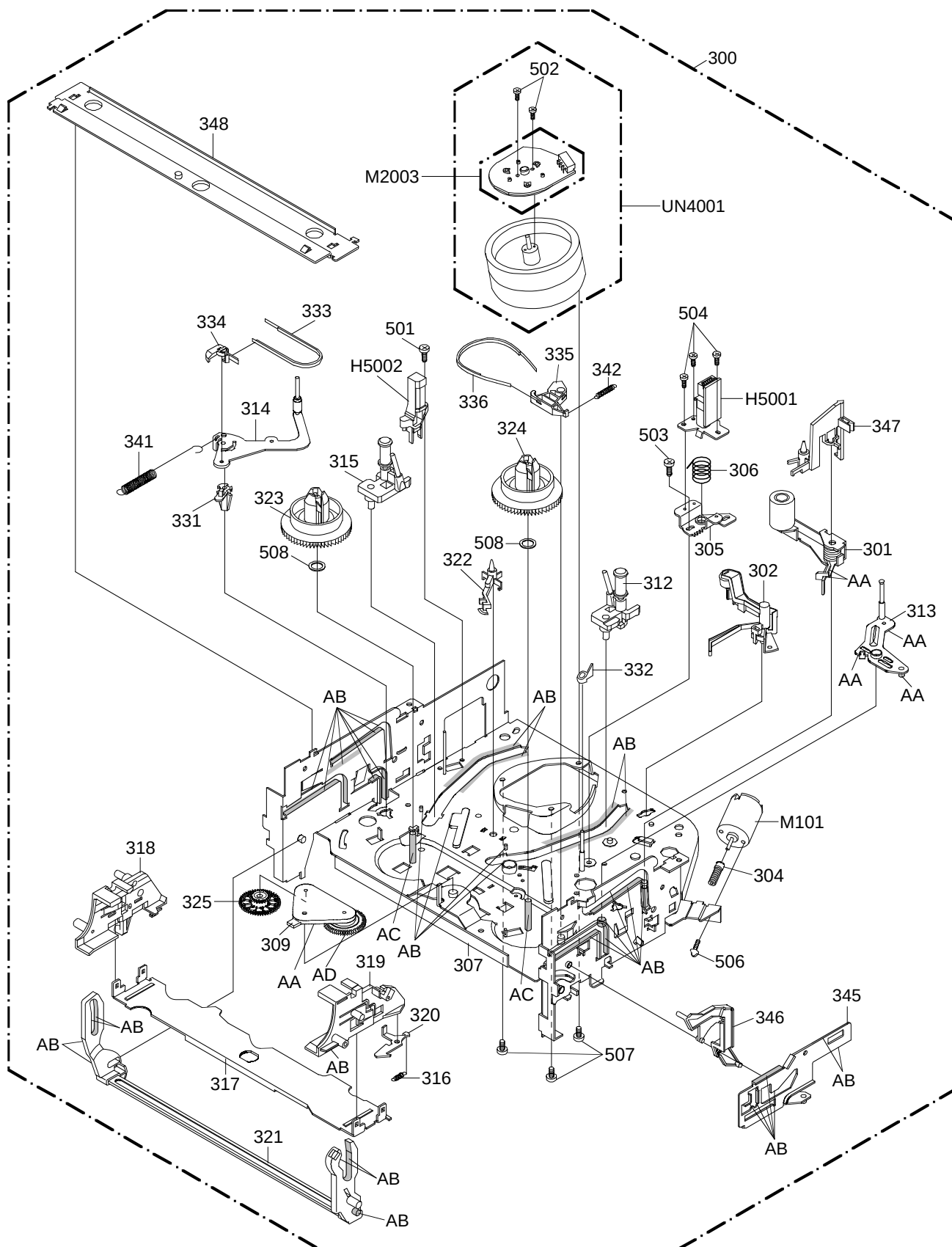
MECHANICAL EXPLODED VIEW



MECHANICAL EXPLODED VIEW



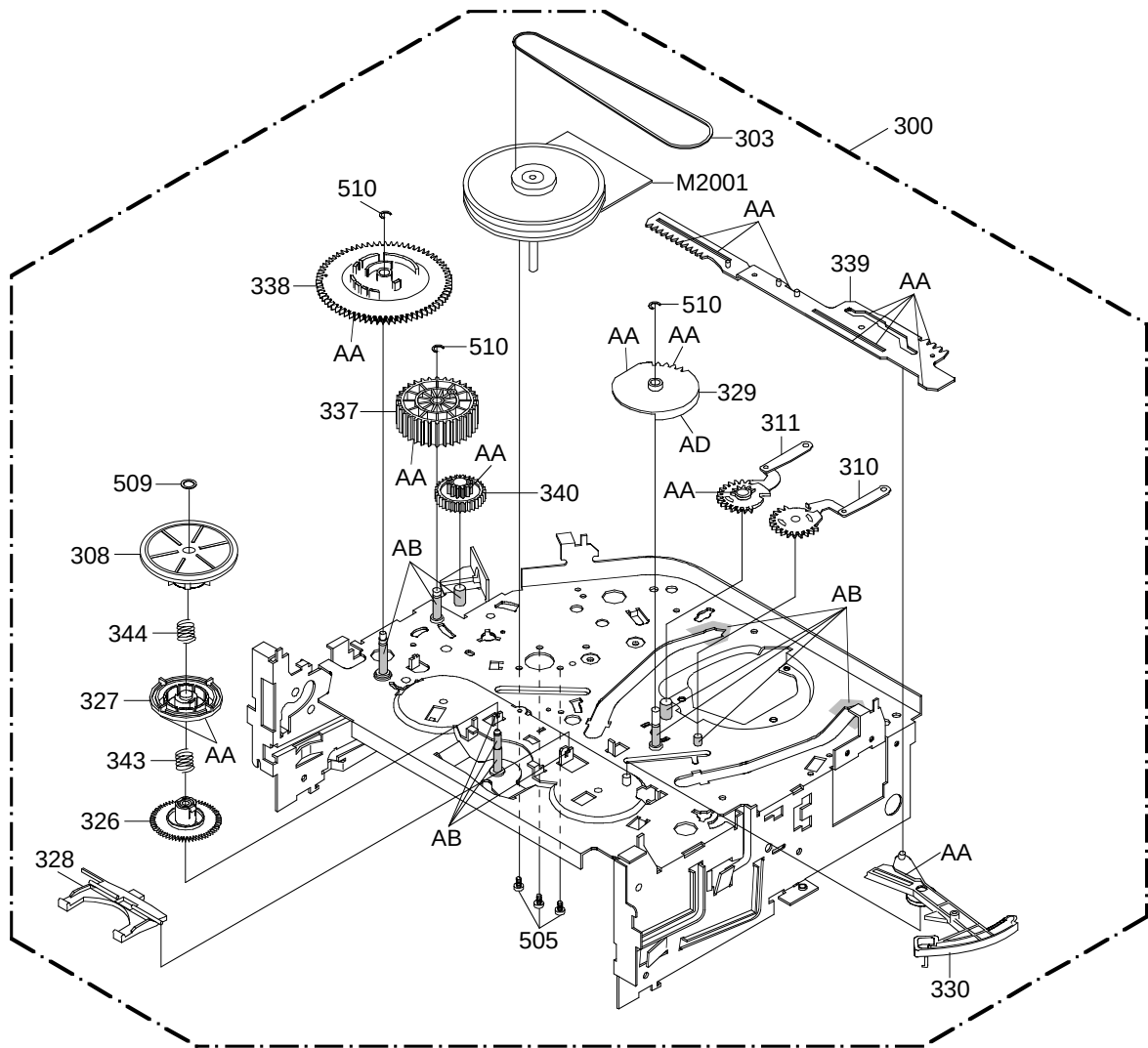
CHASSIS EXPLODED VIEW (TOP VIEW)



CLASS	PART NO.	MARK
GREASE	G-555G	AA
	MG-33	AB
	FG-84M	AC
	FL-721	AD

NOTE: Applying positions AA, AB, AC and AD for the grease are displayed for this section. Check if the correct grease is applied for each position.

CHASSIS EXPLODED VIEW (BOTTOM VIEW)



CLASS	PART NO.	MARK
GREASE	G-555G	AA
	MG-33	AB
	FG-84M	AC
	FL-721	AD

NOTE: Applying positions AA, AB, AC and AD for the grease are displayed for this section.
Check if the correct grease is applied for each position.

MECHANICAL REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION			
101	A5A325A720	CABINET,FRONT ASS'Y			
102	85OP700037	HOLDER,LED			
103	752WSA0230	SHIELD,CASE HEAD AMP			
104	753WSA0118	PLATE,EARTH-SYSCON			
105	899HV3T000	HOLDER,ANODE WIRE			
106	702WPA0832	CABINET,BACK			
107	761WPA0225	HOLDER,DECK			
108	735WPAA267	BUTTON,REC			
109	753WUAA006	SPRING,EARTH HEAD AMP			
110	7260000324	SHEET,CRT SERVICEMAN			
111	741WUA0019	SPRING,EARTH			
112	85OP700038	HOLDER,END SENSOR			
113	701WPJB487	CABINET,FRONT			
114	722A08A109	SHEET,RATING			
115	711WPA0114	PLATE,FRONT			
116	712WPJB238	FLAT,FLAP			
117	713WPA0075	GUIDE,REMOCON			
118	7230006830	SHEET,LED			
119	752WSAA040	PLATE,DECK SHIELD			
120	723000A824	FILM,DECORATION			
121	735WPJA514	BUTTON,FRAME			
122	743WKA0032	SPRING,FLAP(COMBO)			
123	755WPA0026	PLATE,COVER LIGHT			
201	8117540B04	SCREW,TAPPING(B0)	TRUSS	4x20	
202	8117540A64	SCREW,TAPPING(B0)	TRUSS	4x16	
203	8107630604	SCREW,TAP TITE(S)	BRAZIER	3x6	
204	8110630A24	SCREW,TAP TITE(P)	BRAZIER	3x12	
205	8121F50B84	SCREW,TAPPING(BO)	FAI20 FLAT	5x28	
206	8110630A04	SCREW,TAP TITE(P)	BRAZIER	3x10	
207	8110630804	SCREW,TAP TITE(P)	BRAZIER	3x8	
208	8109I30804	SCREW,TAP TITE(B)	WH7	3x8	
209	8110330804	SCREW,TAP TITE(P)	FLAT	3x8	
210	8109630802	SCREW,TAP TITE(B)	BRAZIER	3x8	
211	8109I30A04	SCREW,TAP TITE(B)	WH7	3x10	
---	J5780102	WARRANTY SHEET			
---	J5A30401	INSTRUCTION BOOK			
---	JA5K0200	POLYBAG,INSTRUCTION			
---	791WHA016	LAMIFILM BAG			
---	A5A304A975	INSTRUCTION BOOK KIT			
---	792WHA0271	PACKAGE,TOP			
---	792WHA0272	PACKAGE,BOTTOM			
---	793WCDB198	GIFT BOX			

CHASSIS REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION
300	A5A305A420K	DECK ASSY A5A305A420K	501	8107226804	SCREW,TAP TITE(S) BIND 2.6x8
301	85OA400234	PINCH ROLLER BLOCK	502	810A123504	SEMS A M2.3x5.0
302	85OA500026	AHC ASS'Y	503	8107226404	SCREW,TAP TITE(S) BIND 2.6x4
303	85OP200290	BELT,CAPSTAN (S)	504	8102120604	SCREW,PAN M2x6
304	85OP600581	WORM	505	8109126604	SCREW,TAP TITE(B) PAN 2.6x6
305	85OP500083	BASE,AC HEAD	506	810A130404	SCREW/WASHER(A) M3x4
306	85OP800324	SPRING,AC HEAD	507	810A126504	SCREW/WASHER(A) M2.6x5
307	85OA000459	MAIN CHASSIS ASS'Y	508	82Q264713N	POLYSLIDER WASHER 2.6x4.7xT0.13
308	85OA200089	CLUTCH ASS'Y	509	82P184505N	POLYSLIDER WASHER(CUT) 1.8x4.5xT0.5
309	85OA200090	ARM IDLER ASS'Y	510	83ETW30000	E-RING 3
310	85OA300065	LOADING ARM S UNIT	CD1501	122H071603	CORD JUMPER SMCD-7X151
311	85OA300066	LOADING ARM T UNIT	CD1502	122Y021902	CORD JUMPER 2Y021902
312	85OA400223	INCLINED BASE T UNIT 3S	H5001	1523D91034	HEAD (AUDIO CONTROL) HVMXA1072A
313	85OA400232	P5 ARM ASS'Y 2	H5002	1543D02013	HEAD (FULL ERASE) HVFHP0032A
314	85OA400233	TENSION ARM ASS'Y (WT)	△ M101	1596P98001	MOTOR (LOADING) MXN13FB12K3
315	85OA400231	INCLINED BASE S UNIT	△ M2001	1510S98036	CAPSTAN DD UNIT F2QVB08
316	85OP800358	SPRING,LOCKER	△ M2003	1589S11014	MICRO MOTOR I2OAL03
317	85OP900736	CASS,HOLDER	△ UN4001	A5A305A500	CYLINDER UNIT ASS'Y A5A305A500
318	85OP900748	CASS,SIDE L			
319	85OP900749	CASS,SIDE R			
320	85OP900739	LOCKER,R			
321	85OA900228	LINK UNIT			
322	85OP000496	POST,CASS GUIDE			
323	85OP200291	REEL,S (S)			
324	85OP200292	REEL,T (S)			
325	85OP200308	GEAR,IDLER			
326	85OP200311	GEAR,CLUTCH			
327	85OP200312	GEAR,COUPLING			
328	85OP200313	LEVER,CLUTCH			
329	85OP300194	GEAR,MAIN LOADING			
330	85OP400490	LEVER,TENSION			
331	85OP400492	HOLDER,TENSION			
332	85OP400520	CAP.P4			
333	85OP400532	BAND,TENSION			
334	85OP400533	CONNECT,TENSION			
335	85OP600573	ARM,BRAKE T			
336	85OP600574	BAND,BRAKE T			
337	85OP600577	CAM,PINCH ROLLER			
338	85OP600578	CAM,MAIN			
339	85OP600579	ROD,MAIN			
340	85OP600582	GEAR,JOINT			
341	85OP800322	SPRING,TENSION			
342	85OP800350	SPRING,BRAKE T			
343	85OP800355	SPRING,COUPLING			
344	85OP800356	SPRING,RING			
345	85OP900750	LEVER,LINK 2			
346	85OP900744	LEVER,FLAP			
347	85OP900745	CASS,OPENER			
348	85OP900746	BRACKET,TOP 3V			

ELECTRICAL REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION		REF. NO.	PART NO.	DESCRIPTION	
RESISTORS				DIODES			
△ R415	R002T22R2J	RC	2.2 OHM 1/2W	D537	D1VT001330	DIODE,SILICON	1SS133T-77
△ R420	R801R7822F	RC	8.2K OHM 1/10W	D601	D1VT001330	DIODE,SILICON	1SS133T-77
△ R439	R801R7223F	RC	22K OHM 1/10W	D602	D97U08R21B	DIODE,ZENER	MTZJ8.2B T-77
△ R442	R801R7153F	RC	15K OHM 1/10W	D605	D2WT11ES10	DIODE SILICON	11ES1-EIC
△ R444	R801R7183F	RC	18K OHM 1/10W	D608	D2WXS81400	DIODE SCHOTTKY	SB140-EIC
△ R447	R65582680J	R,FUSE	68 OHM 1/2W	D609	D97U06R81B	DIODE,ZENER	MTZJ6.8B T-77
R449	R63502010J	R,FUSE	1 OHM 1/2W	D610	D97U06R81B	DIODE,ZENER	MTZJ6.8B T-77
	R655U2010J	R,FUSE	1 OHM 1/2W	D611	D97U06R81B	DIODE,ZENER	MTZJ6.8B T-77
	R655815R6J	R,FUSE	5.6 OHM 1W	D612	D1VT001330	DIODE,SILICON	1SS133T-77
△ R450	R0G3K2275K	RC	2.7M OHM 1/2W	D613	D1VT001330	DIODE,SILICON	1SS133T-77
△ R501	R5Y2CD2R2J	R,CEMENT	2.2 OHM 5W	D614	D1VT001330	DIODE,SILICON	1SS133T-77
△ R502	R3X28B100J	R,METAL OXIDE	10 OHM 3W	D615	D97U06R81B	DIODE,ZENER	MTZJ6.8B T-77
△ R510	R903N8105J	RC	1M OHM 1/8W	D619	D1VT001330	DIODE,SILICON	1SS133T-77
△ R512	R002T2563J	RC	56K OHM 1/2W	D620	D1VT001330	DIODE,SILICON	1SS133T-77
R514	R3X181R33J	R,METAL OXIDE	0.33 OHM 1W	D621	D1VT001330	DIODE,SILICON	1SS133T-77
△ R517	R3X181331J	R,METAL OXIDE	330 OHM 1W	D791	0021E2Q150	LED	LTL-4224-031A
△ R528	R63581R22J	R,FUSE	0.22 OHM 1W	D793	0021E2Q150	LED	LTL-4224-031A
△ R802	R3X181123J	R,METAL OXIDE	12K OHM 1W	D1001	D1VT001330	DIODE,SILICON	1SS133T-77
△ R805	R3X181123J	R,METAL OXIDE	12K OHM 1W	D1003	0010100320	INFRARED LED	LNA2702L010R
△ R810	R3X181123J	R,METAL OXIDE	12K OHM 1W	D4003	D1VT001330	DIODE,SILICON	1SS133T-77
CAPACITORS				ICS			
C354	E02L02222M	CE	2200 UF 16V	△ IC351	I01DP75110	IC	AN7511
△ C402	E02L04102M	CE	1000 UF 35V	△ IC401	I01TD55220	IC	AN5522
△ C407	E02L03102M	CE	1000 UF 25V	IC501	11KA98R050	IC	KIA78R05PI
C423	P4J7F3474J	CMPP	0.47 UF 250V PMS	△ IC502	0002500450	PHOTO COUPLER	TLP621(GR)
△ C424	P4N8FJ912H	CMPP	0.0091UF 1.25KV	IC601	I06FC61206	IC	M61206FP
△ C431	E02LTD2R2M	CE	2.2 UF 250V	IC1001	I56F57071A	IC	OEC7071A
△ C433	E02LT3331M	CE	330 UF 25V	△ IC1003	IC7J0311A0	IC	R3111N311A/C-TR
C451	P61101224J	CMPL	0.22 UF 100V TF	IC1099	A5A325A015	IC	S-24C04BDP-LA
	P611T1224J	CMPL	0.22 UF 100V TF	IC4001	I03F301MNO	IC	LA71201M-N-MPB
△ C506	P2472B224M	CMP	0.22UF 275V PHE840	TRANSISTORS			
△ C507	C0JTB0513K	CC	0.001 UF 500V B	Q403	TNAAJ05003	COMPOUND TRANSISTOR	KRC111SRTK
C509	E51CGC471M	CE	470 UF 200V	Q404	TPAAD05003	COMPOUND TRANSISTOR	KRA104SRTK
△ C511	E02LT3471M	CE	470 UF 25V	△ Q405	TC5T01627Y	TRANSISTOR SILICON	2SC1627_Y(TPE2)
C517	C0PLRR7H3K	CC	0.0022 UF 2KV RR	△ Q406	TD30026270	TRANSISTOR SILICON	2SD2627LS-CBC11
△ C521	E62NFC221M	CE	220 UF 200V	Q407	T8YJ2412K0	TRANSISTOR SILICON	2SC2412KT146 R,S
△ C530	CB3930MQ2K	CC	470 PF 250V	Q505	T6YJ1037K0	TRANSISTOR SILICON	2SA1037AKT146
C535	C0PLRR713K	CC	0.001 UF 2KV RR	Q507	TCATC31980	TRANSISTOR SILICON	KTC3198-AT(Y,GR)
△ C539	CB3930ML3M	CC	0.0033UF 250V	△ Q510	TJXG5NC500	FET	STP5NC50FP
C541	C0PLRR7W2K	CC	820 PF 2KV RR	△ Q511	TCAT032034	TRANSISTOR, SILICON	KTC3203_Y-AT
C801	C0PLRR7H3K	CC	0.0022 UF 2KV RR	Q601	T6YJ1037K0	TRANSISTOR,SILICON	2SA1037AKT146R,S
DIODES				Q602	TCAT032034	TRANSISTOR, SILICON	KTC3203_Y-AT
D401	D2WT011E10	DIODE SILICON	11E1-EIC	Q603	TCAT032034	TRANSISTOR, SILICON	KTC3203_Y-AT
△ D402	D2WXN49370	DIODE SILICON	1N4937	Q604	TDWT00400E	TRANSISTOR SILICON	2SD400E
D403	D97U03001B	DIODE,ZENER	MTZJ30B T-77	Q605	TDWT00400E	TRANSISTOR SILICON	2SD400E
	D97U03301C	DIODE,ZENER	MTZJ33C T-77	Q606	TCAT032034	TRANSISTOR SILICON	KTC3203_Y-AT
D404	D97U03001B	DIODE,ZENER	MTZJ30B T-77	Q608	TNAAJ05003	COMPOUND TRANSISTOR	KRC111SRTK
	D97U03301C	DIODE,ZENER	MTZJ33C T-77	Q609	TNAAJ05003	COMPOUND TRANSISTOR	KRC111SRTK
D405	D2WT011E10	DIODE SILICON	11E1-EIC	Q611	TNAAB05003	COMPOUND TRANSISTOR	KRC102SRTK
D407	D1VT001330	DIODE,SILICON	1SS133T-77	Q612	TNAAB05003	COMPOUND TRANSISTOR	KRC102SRTK
△ D408	D94TA27011	DIODE ZENER	HZ27-1L TD	△ Q804	TC3F042170	TRANSISTOR,SILICON	2SC4217(D,E)-RAC
△ D409	D94TA11B13	DIODE ZENER	HZ11B3L TD	△ Q805	TC3F042170	TRANSISTOR,SILICON	2SC4217(D,E)-RAC
D410	D97U06R81B	DIODE,ZENER	MTZJ6.8B T-77	△ Q806	TC3F042170	TRANSISTOR,SILICON	2SC4217(D,E)-RAC
D411	D1VT001330	DIODE,SILICON	1SS133T-77	Q1003	0002700680	PHOTO COUPLER	RPI-352C40N or
△ D412	D2WXN49370	DIODE,SILICON	1N4937		0002700530	PHOTO COUPLER	RPI-352Q01R
△ D413	D2WXN49370	DIODE,SILICON	1N4937	Q1004	TNAAC05002	COMPOUND TRANSISTOR	KRC103SRTK
△ D501	D97U01001B	DIODE,ZENER	MTZJ10B T-77	△ Q1005	0002700690	PHOTO COUPLER	RPI-303
△ D505	D2WXB290S0	DIODE SILICON	SB290S	Q1007	TNAAB05003	COMPOUND TRANSISTOR	KRC102SRTK
D507	D2W0B290S0	DIODE SILICON	SB290S-B-EIC	Q1008	TNAAB05003	COMPOUND TRANSISTOR	KRC102SRTK
	D2WXB290S0	DIODE SILICON	SB290S	Q1009	0002700680	PHOTO COUPLER	RPI-352C40N or
D508	D1VT001330	DIODE SILICON	1SS133T-77		0002700530	PHOTO COUPLER	RPI-352Q01R
△ D510	D2WXRU2AM0	DIODE SILICON	RU2AM-EIC	Q1011	0000M00390	PHOTO TRANSISTOR	ST-304L
△ D512	D2WXB290S0	DIODE SILICON	SB290S	Q1013	0000M00390	PHOTO TRANSISTOR	ST-304L
D513	D1VT001330	DIODE SILICON	1SS133T-77	Q1023	T8YJ2412K0	TRANSISTOR SILICON	2SC2412KT146 R,S
D514	D1VT001330	DIODE,SILICON	1SS133T-77	Q1024	TNAAC05002	COMPOUND TRANSISTOR	KRC103SRTK
△ D515	D97U03301B	DIODE,ZENER	MTZJ33B T-77	Q4001	TCATC31980	TRANSISTOR,SILICON	KTC3198-AT(Y,GR)
△ D517	D28TELS2N2	DIODE RECTIFER	10ELS2N-TA1B2	Q4002	TCATC31980	TRANSISTOR,SILICON	KTC3198-AT(Y,GR)
D518	D2WTRM11C0	DIODE SILICON	RM11C-EIC	Q4003	TPAAC05002	COMPOUND TRANSISTOR	KRA103SRTK
△ D519	D2WXB290S0	DIODE SILICON	SB290S	Q4005	TAATA12660	TRANSISTOR,SILICON	KTA1266-AT(Y,GR)
D520	D2WTRM11C0	DIODE SILICON	RM11C-EIC	Q4006	TCAT032034	TRANSISTOR, SILICON	KTC3203_Y-AT
D521	D2WTRM11C0	DIODE SILICON	RM11C-EIC	Q4007	T8YJ2412K0	TRANSISTOR SILICON	2SC2412KT146 R,S
D528	D97U05R61B	DIODE,ZENER	MTZJ5.6B T-77	Q4009	T6YJ1037K0	TRANSISTOR,SILICON	2SA1037AKT146R,S
D530	D2WTRM11C0	DIODE SILICON	RM11C-EIC	Q4010	T6YJ1037K0	TRANSISTOR,SILICON	2SA1037AKT146R,S
D533	D1VT001330	DIODE SILICON	1SS133T-77	Q4011	T8YJ2412K0	TRANSISTOR SILICON	2SC2412KT146 R,S
△ D534	D97U01801B	DIODE,ZENER	MTZJ18B T-77	Q4012	T8YJ2412K0	TRANSISTOR SILICON	2SC2412KT146 R,S
△ D535	D97U01801B	DIODE,ZENER	MTZJ18B T-77	COILS & TRANSFORMERS			
D536	D28TELS6N6	DIODE RECTIFER	10ELS6N-TA1B2	L401	021679472K	COIL	4.7 MH

ELECTRICAL REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION		REF. NO.	PART NO.	DESCRIPTION	
COILS & TRANSFORMERS				MISCELLANEOUS			
△ L502	029T000092	COIL,LINE FILTER	1R0A103F24	△ F501	081PC05004	FUSE	51MS050LCC
△ L503	028R140031	COIL,DEGAUSS	8R140031	△ F502	081PC2R504	FUSE	51MS025LCC
L601	0331920018	COIL	3192001	△ FB401	043213015R	TRANSFORMER,FLYBACK	3213015R
L603	02167F470J	COIL	47 UH	FH501	06710T0006	HOLDER,FUSE	EYF-52BC
L607	021LA6220K	COIL	22 UH	FH502	06710T0006	HOLDER,FUSE	EYF-52BC
L612	021LA66R8K	COIL	6.8 UH	FH503	06710T0006	HOLDER,FUSE	EYF-52BC
L801	021673221K	COIL	220 UH	FH504	06710T0006	HOLDER,FUSE	EYF-52BC
L1001	021LA62R2K	COIL	2.2 UH	OS753	077Q037002	REMOTE RECEIVER	PIC-37143TH5
L1003	02167H220K	COIL	22 UH	△ SP351	070C533019	SPEAKER	SG04D11BNA
L4001	02167F220J	COIL	22 UH	△ TH501	DF5EL3R0A0	DEGAUSS ELEMENT	ZPB45BL3R0A
L4003	02167F101J	COIL	100 UH	TM101	076R0CG010	TRANSMITTER	R25-1195
L4005	02167F470J	COIL	47 UH	△ TU601	0145K00055	TUNER,VHF-UHF	TECC1040PG32D
L4006	02167F470J	COIL	47 UH	△ V801	098Q1404B2	CRT W/DY	A34AGT13X98(L)
L4009	02167F101J	COIL	100 UH	X602	100CT3R505	CRYSTAL	HC-49/C
T401	045009003J	TRANS,HORIZONTAL DRIVE	ETH09K14BZ	X1001	100CT01207	CRYSTAL	HC-49/U-S
△ T501	0481290804	TRANSFORMER,SWITCHING	81290804	X1002	100DA32R01	CRYSTAL	DT-26
T4001	031626009R	COIL,BIAS OSC	1626009	X4001	100CT3R502	CRYSTAL	HC-49/U
JACKS							
△ J351	060G131014	RCA JACK	HTJ-035-28A	RESISTOR			
J701	060Q401075	RCA JACK	AV2-24D-5	RC..... CARBON RESISTOR			
△ J801	066X120014	SOCKET,CATHODE RAY TUBE	HPS3200-010501	CAPACITORS			
SWITCHES							
SW751	0504101T34	SWITCH,TACT	EVQ21505R	CC..... CERAMIC CAPACITOR			
SW791	0504101T34	SWITCH,TACT	EVQ21505R	CE..... ALUMI ELECTROLYTIC CAPACITOR			
SW792	0504101T34	SWITCH,TACT	EVQ21505R	CP..... POLYESTER CAPACITOR			
SW793	0504101T34	SWITCH,TACT	EVQ21505R	CPP..... POLYPROPYLENE CAPACITOR			
SW794	0504101T34	SWITCH,TACT	EVQ21505R	CPL..... PLASTIC CAPACITOR			
SW795	0504101T34	SWITCH,TACT	EVQ21505R	CMP..... METAL POLYESTER CAPACITOR			
SW796	0504101T34	SWITCH,TACT	EVQ21505R	CMPL..... METAL PLASTIC CAPACITOR			
SW797	0504101T34	SWITCH,TACT	EVQ21505R	CMPP..... METAL POLYPROPYLENE CAPACITOR			
SW798	0504101T34	SWITCH,TACT	EVQ21505R				
SW799	0504101T34	SWITCH,TACT	EVQ21505R				
SW1001	0508A11002	SWITCH(LEAF)	MXS01380MPP0				
VARIABLE RESISTORS							
VR401	V1263H3BT7	VOLUME,SEMI FIXED	RH0683CJ3R				
VR502	V1163L2BTC	VOLUME,SEMI FIXED	EVNOCYAA03BY2				
P.C.BOARD ASSEMBLIES							
PCB010	A5A325A010	PCB ASS'Y	VMA227A				
PCB030	A5A303C030	PCB ASS'Y	TEXA28A				
PCB110	A5A325A110	PCB ASS'Y	TCA377A				
MISCELLANEOUS							
ANT001	125C108030	ANTENNA,ROD	HPAS-2S780				
B402	024HT03553	CORE,BEADS	W5RH3.5X5X1.0				
B403	024HT03553	CORE,BEADS	W5RH3.5X5X1.0				
B501	024A8407C3	CORE,BEADS	BL02RN2-R62T2				
B503	024HT03553	CORE,BEADS	W5RH3.5X5X1.0				
B602	024HT03553	CORE,BEADS	W5RH3.5X5X1.0				
B604	024HT03564	CORE,BEADS	W4BRH3.5X6X1				
CD351	06CH27090A	CORD CONNECTOR	CH27090A				
CD352	06CH12435A	CORD CONNECTOR	CH12435A				
△ CD501	120R414903	CORD AC BUSH	0R414903				
CD757	06CH2A019A	CORD CONNECTOR	CH2A019A				
CD801	06CU82039A	CORD CONNECTOR	SM1098-009-1A				
CD803	06CH012101	CORD CONNECTOR	CH012101				
CD851	WHL6032038	FLAT CABLE	AWG26 10C BLACK 320MM				
CD852	06CH01408A	CORD EIS CONNECTOR	CH01408A				
CF601	1022045R72	FILTER,SAW	SAFGP45M7VFYZR0B or				
	1022T45R72	FILTER,SAW	SAF45MFY220ZR				
CF603	1011T4R504	FILTER,CERAMIC	EFCT4R5YS5A				
CF604	1011T4R517	FILTER,CERAMIC	EFCT4R5MW5				
CP351	0694260139	CONNECTOR PCB SIDE	173979-6				
CP353	0694270139	CONNECTOR PCB SIDE	173979-7				
△ CP401	069S450089	CONNECTOR PCB SIDE	A1561WV2-A5P				
△ CP502	069S420110	CONNECTOR PCB SIDE	A1561WV2-2P				
CP504	069W01001A	CONNECTOR PCB SIDE	003P-2100				
CP505	069W01001A	CONNECTOR PCB SIDE	003P-2100				
CP757	06942A0139	CONNECTOR PCB SIDE	1-173979-0				
CP801	069S320010	CONNECTOR PCB SIDE	A2361WV2-2P				
CD4001	122L061501	CORD JUMPER	2L061501				
CP1001	06972C0010	CONNECTOR PCB SIDE	TMC-J12P-B2				
CP1003	0694240139	CONNECTOR PCB SIDE	173979-4				
CP4001	0697240600	CONNECTOR PCB SIDE	TOC-C04X-B1				
CP4002	069J760029	CONNECTOR PCB SIDE	IMSA-9604S-06Z14				
CP4003	0697120320	CONNECTOR PCB SIDE	TMC-T02X-E1				
CP851A	067U010049	WIRE HOLDER	B2013H02-10P				
CP851B	067U010049	WIRE HOLDER	B2013H02-10P				
CUS012	800WFAA008	CUSHION C					

SPEC.NO.	M5A3-25A
O/R NO.	K215009



MVT2135B Series E

SERVICE MANUAL

COLOR TELEVISION/VIDEO CASSETTE RECORDER

**REVISION 1
MFR'S VERSION B**



MFR'S VERSION	CRT
B	A34JXV70X53N45
C	A34AGT13X98(L)

Change of CRT

ELECTRICAL REPLACEMENT PARTS LIST

REF. NO.	MFR'S VERSION C		MFR'S VERSION B	
	PART NO.	DESCRIPTION	PART NO.	DESCRIPTION
 V801	098Q1404B2	CRT W/DY A34AGT13X98(L)	098Y1404B9	CRT W/DY A34JXV70X53N45
IC4001	I03F301MN0	IC LA71201M-N-MPB	I03F3205M0	IC LA71205M-MPB
CP351	0694260139	CONNECTOR PCB SIDE 173979-6	069E260659	CONNECTOR PCB SIDE 00_8283_0611_00_000
PCB110	A5A325A010	SYSCON PCB ASS'Y (VERSION C) VMA227A	A5A325C010	SYSCON PCB ASS'Y (VERSION B) VMA227A

SYSCON PCB's are not interchangeable.

SPEC.NO.	M5A3-25C
O/R NO.	K235054